DESIGN DATA						
Traffic	Average Daily					Max.Hr.
	Pass:	3630	Trucks	570	Total 4200	420
Forecast(2019)	Pass:	5150	Trucks	800	Total 5950	600
Minimum Sight Dist. for:			Design Speed:		70 mph	
Stopping:		730 feet	Bridges:		2 - HS25	
Safe Passing:						
Passing for Marking:						
Pavement Design Life (years):		20				

JOB# 3

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

STUTSMAN COUNTY
HPP-2-052(019)915
US 52/281 TRUCK BYPASS AT JAMESTOWN
GRADING, AGGREGATE BASE, STRUCTURES,
BITUMINOUS SURFACING AND INCIDENTAL ITEMS

STATE	PROJECT NO.	PCN	SHEET NO.
ND	HPP-2-052(019)915	13249	1

interstate engineering, inc.
ENGINEERING SURVEYING PLANNING

GOVERNING SPECIFICATIONS:

Standard Specifications adopted by the North Dakota Department of Transportation October 1997; Standard Drawings currently in effect; and other Contract Provisions submitted herein.

LENGTH OF PROJECT
Gross 1.287 Miles

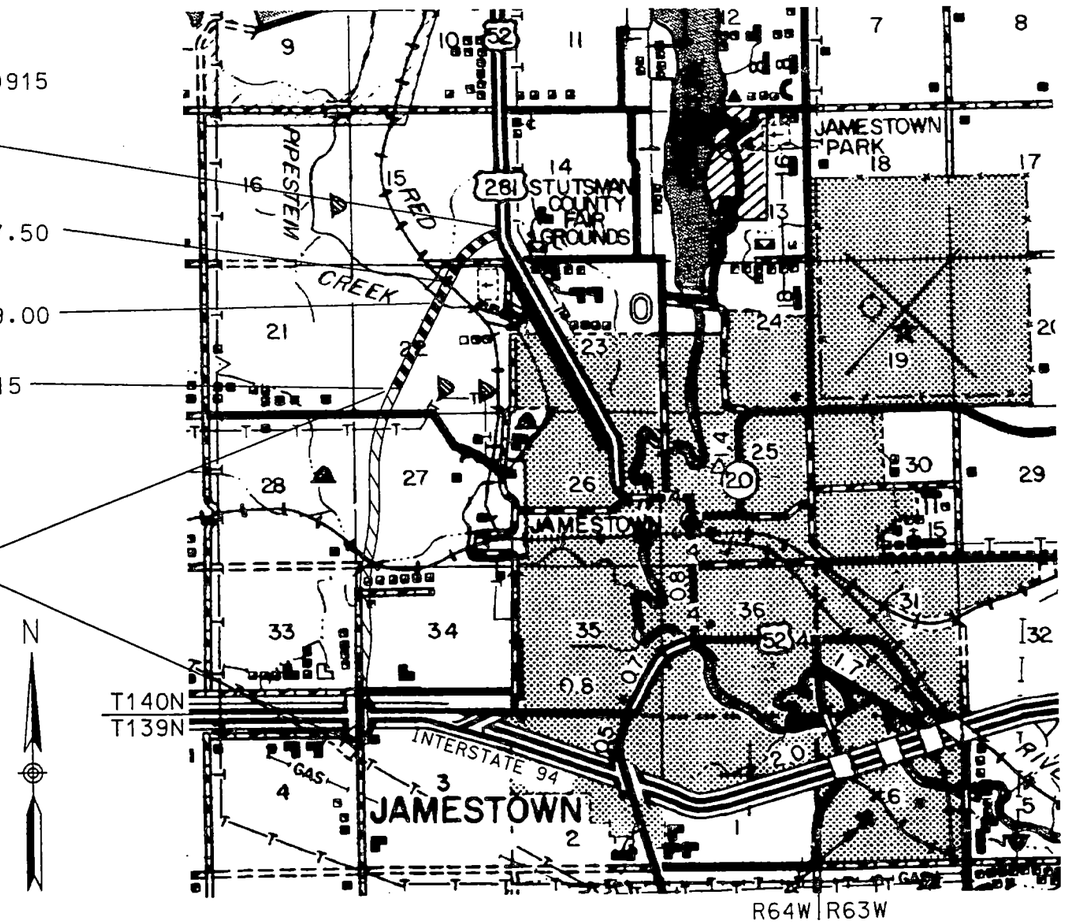
Begin Project HPP-2-052(019)915
Station 792+00
RP 15.000

Structure - Site 1
Sta. 816+46.00 - Sta. 818+67.50

Structure - Site 2
Sta. 827+64.00 - Sta. 831+39.00

End Project HPP-2-052(019)915
Station 860+00
RP 16.288

HPP-2-052(020)916
Separate Contract
Concurrent Work



DESIGNER _____
DESIGNER _____
DESIGNER _____
DESIGNER _____
RECOMMEND APPROVAL _____, 20 ____

APPROVED DATE _____

DIVISION ADMINISTRATOR
FEDERAL HIGHWAY ADMINISTRATION
U.S. DEPARTMENT OF TRANSPORTATION

APPROVED DATE 5/31/02

OFFICE OF INFRASTRUCTURE SUPPORT
ND DEPARTMENT OF TRANSPORTATION

I hereby certify that the attached plans were prepared by me or under my direct supervision and that I am a duly registered professional engineer under the laws of the state of ND.

APPROVED DATE May 10, 2002

INTERSTATE ENGINEERING, INC.

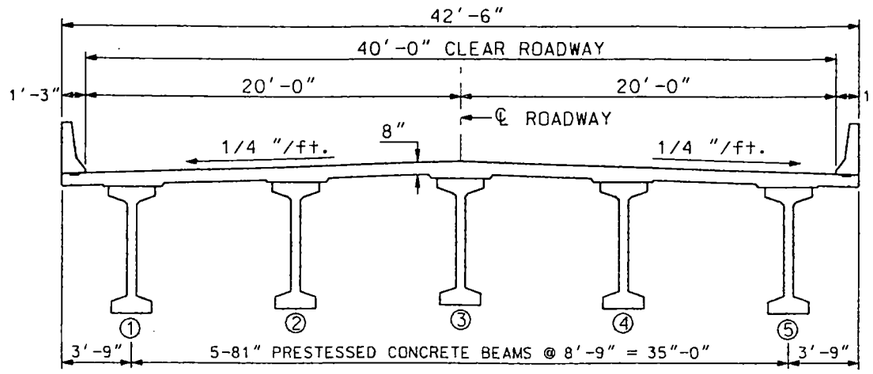
RANDALL A. POPE REGISTERED PROFESSIONAL 1841 ENGINEER NORTH DAKOTA

BRIDGE CODE	STATE	PROJECT NUMBER	SHEET NO.
X-081	ND	HPP-2-052(019)915	79

REVISED 8-5-02

interstate engineering, inc.
ENGINEERING SURVEYING PLANNING

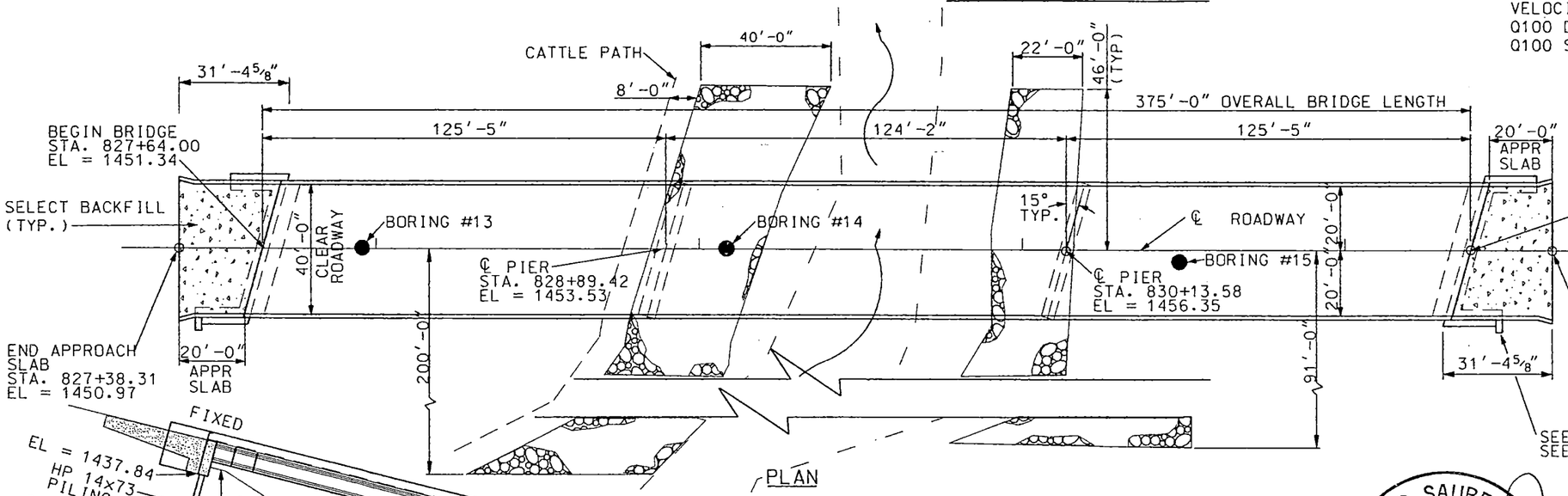
SPEC CODE	ITEM DESCRIPTION	UNIT	QUANTITY
210 0103	CLASS 1 EXCAVATION - SITE 2	L SUM	1
210 0111	CLASS 2 EXCAVATION	L SUM	1
210 0203	FOUNDATION PREPARATION -SITE 2	L SUM	1
550 0215	CONCRETE BRIDGE APPROACH SLAB	SY	243.4
602 0130	CLASS AAE-3 CONCRETE	CY	578.6
602 1130	CLASS AE-3 CONCRETE	CY	418.5
602 1250	PENETRATING WATER REPELLENT TR.	SY	1.667
604 9934	PRESTRESSED I-BEAM-81 IN.	LF	1847.5
612 0115	REINFORCING STEEL GRADE 60	LBS	77.894
612 0116	REINFORCING STEEL GRADE 60 EPOXY	LBS	150.168
622 0016	STEEL H-PILE TIPS 14x73	EA	58
622 0048	BITUMINOUS COATED STEEL PILING HP 14x73	LF	1.035
622 0060	STEEL PILING HP14 x 73	LF	2.840
708 1020	RIP RAP-LOOSE ROCK	CY	1.155
930 3000	BRIDGE BENCH MARKS	SET	1



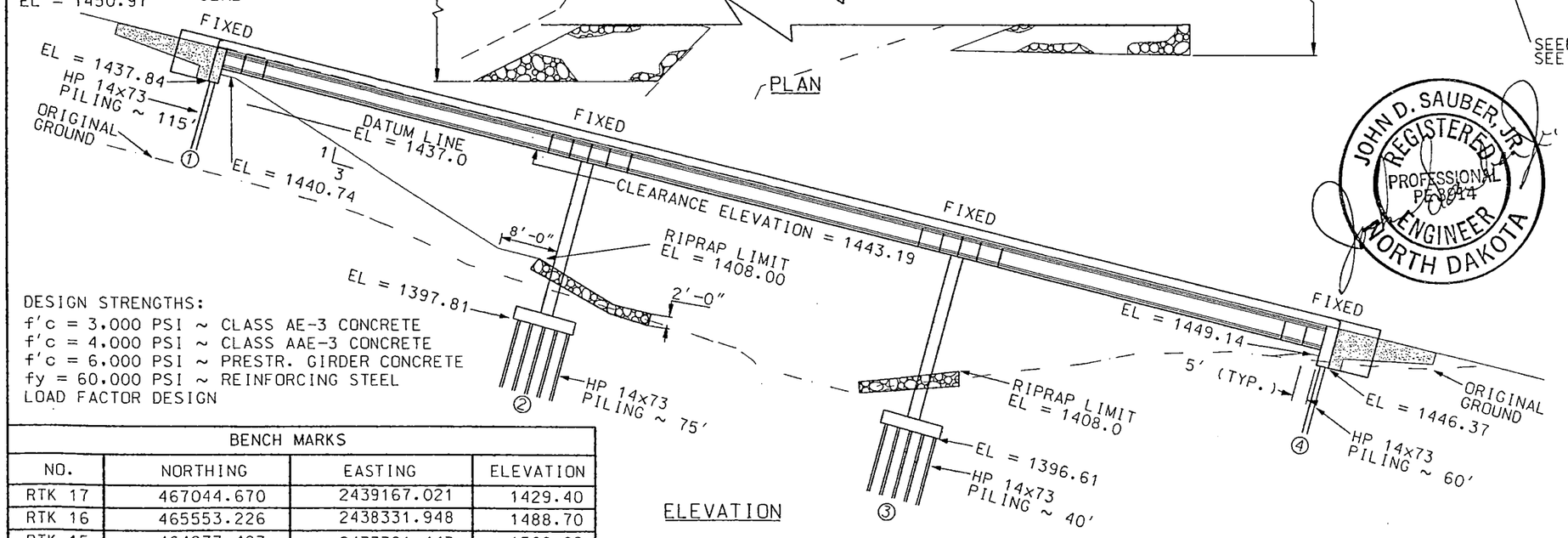
TYPICAL DECK SECTION

HYDRAULIC DATA

DRAINAGE AREA	600 sq mi
DESIGN FREQUENCY	50 yrs
DESIGN DISCHARGE	780 cfs
DESIGN STAGE (UPSTREAM)	1402.65
VELOCITY NATURAL CHANNEL (Q50)	2.53 fps
VELOCITY THROUGH BRIDGE (Q50)	2.18 fps
Q100 DISCHARGE	1800 cfs
Q100 STAGE	1405.75



PLAN



ELEVATION

DESIGN STRENGTHS:
f'c = 3.000 PSI ~ CLASS AE-3 CONCRETE
f'c = 4.000 PSI ~ CLASS AAE-3 CONCRETE
f'c = 6.000 PSI ~ PRESTR. GIRDER CONCRETE
fy = 60.000 PSI ~ REINFORCING STEEL
LOAD FACTOR DESIGN

BENCH MARKS			
NO.	NORTHING	EASTING	ELEVATION
RTK 17	467044.670	2439167.021	1429.40
RTK 16	465553.226	2438331.948	1488.70
RTK 15	464977.487	2437321.443	1508.08

JOHN D. SAUBER, JR. REGISTERED PROFESSIONAL PE-3014 ENGINEER NORTH DAKOTA

STANDARD DRAWINGS

D-622-1. D-900-1

F.W.S. 15 PSF

HS 25 DESIGN LOADING

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

PIPESTEM CREEK
HWY 52 BYPASS
JAMESTOWN

BRIDGE LAYOUT

PROJECT: HPP-2-052(019)915
STATION 829+51.50
STUTSMAN COUNTY

8-15-02 Jerome K. Holland
DATE BRIDGE ENGINEER

SITE 2 52-915.716

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08/08/2002

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PIPESTEM BRIDGE NOTES

STATE	PROJECT NUMBER	SHEET NO.
ND	HPP-2-052(019)915	80

interstate engineering, inc.
ENGINEERING SURVEYING PLANNING

100 SCOPE OF WORK: This project consists of building a new bridge on a new roadway over Pipestem Creek. The bridge is a 3-span concrete girder bridge. The overall length is 375' and the clear roadway width is 40'.

Flows in Pipestem Creek are controlled by releases from the Pipestem Dam. Water levels will fluctuate throughout the construction of the bridge. The contractor shall contact Bob Martin of the Corps of Engineers (701)252-7676 to obtain discharge information for the Pipestem Dam.

100 GENERAL: The cost of furnishing and placing preformed expansion joint filler, concrete inserts, and other miscellaneous items shall be included in the price bid for Class AE-3 and AAE-3 concrete.

203 EMBANKMENT: The embankment at the abutments shall be in place for a minimum of 30 days before pile is driven.

ABUTMENT 1:
The contractor shall be required to bore through the constructed embankment at abutment 1 to an elevation of 1429, before driving pile. The pile at abutment 1 shall be bituminous coated from the cutoff elevation to an elevation of 1429. Excess length of bituminous coating shall be applied to the first pile driven to ensure coating to the elevation listed above. Once the first pile is in place the amount of bituminous required can be determined based on the in-place length of the first pile.
All pilot holes not completely filled by the piling shall be back filled with sand or fine gravel before the substructure is placed.

ABUTMENT 4:
In lieu of the above waiting period, the contractor may begin pile driving operations as soon as the embankment is in place if pilot holes are drilled through the constructed embankment and into the original ground to an elevation of 1440.0. Pilot holes shall be required for all piling to be driven through an embankment.
All pilot holes not completely filled by the piling shall be back filled with sand or fine gravel before the substructure is placed.

210 EXCAVATION: Class 1 excavation, at the abutments, shall extend from the bottom of the footing to the upper limits as shown on DWG 52-915.716-6.

210 EXCAVATION: Class 2 excavation at the piers shall extend from the bottom of the footing to the ground line.

210 EXCAVATION: The excavation at the abutments, as shown, shall be included in the lump sum bid item, "Class 1 Excavation." The excavation at the piers, as shown, shall be included in the lump sum bid item, "Class 2 Excavation."

210 SELECT BACKFILL: Select backfill shall meet the requirements of Section 816.03, Class 3. The backfill shall be placed in layers of not more than 6 inches, moistened or dried as required, and thoroughly compacted with mechanical tamping equipment.

550 BRIDGE APPROACH SLABS: Mechanical finishing of the approach slabs shall be required. A mechanical or hand-held transverse metal tine finish shall be applied. Tining shall start 6" from the beginning and end of the approach slabs. A surface tolerance of 3/16" in 10 feet is also required.

602 DIAPHRAGMS: If the pier diaphragm and end beam concrete is placed before the deck concrete, the concrete shall cure for at least 72 hours before deck placement. The intermediate diaphragm concrete shall be placed at least 72 hours before deck placement.

602 SURFACE FINISH "D": Surface Finish "D" shall be required for the inside, outside and top surfaces of the barrier; and the face of the abutment wings.

602 DECK CONCRETE: Beams and girders have slight variations in the anticipated camber. To build the deck to the designated thickness will require slight adjustments in deck elevation and/or riser dimensions. These adjustments result in minor concrete quantity discrepancies. The contractor shall consider this quantity discrepancy when he bids the unit price for Class AAE-3 concrete. The department will pay plan quantity of Class AAE-3 Concrete.

Deflection of the deck shoring shall be computed using the total deal load plus the weight of the finishing machine. The forming shall be adjusted properly to accommodate the deflection and thereby maintain the total slab thickness specified in the plans.

PIPESTEM BRIDGE NOTES

STATE	PROJECT NUMBER	SHEET NO.
ND	HPP-2-052(019)915	81

interstate engineering, inc.
ENGINEERING SURVEYING PLANNING

602 CONCRETE DECK SLAB CURING: The deck shall be cured by the wet-cure method. If the concrete surface begins to dry between the final finish and the beginning of the wet-cure, it shall be kept moist by means of a light fog spray applied so as not to damage the surface of the concrete. The wet-cure shall begin when the concrete has achieved initial set. The wet-cure method shall consist of covering the deck with a double thickness of burlap or a geotextile fabric capable of retaining moisture. The burlap or fabric shall be kept continuously moist for the next seven days. The burlap or fabric shall be moistened at a minimum of every four hours. If conditions exist such as strong winds or high temperatures, causing the burlap or fabric to become dry, the watering rate shall be increased. Covering the deck with a waterproof material such as polyethylene or the use of curing compounds will not be allowed.

602 PENETRATING WATER REPELLENT TREATMENT: Penetrating water repellent shall be applied to the driving surface of the concrete deck.

602 BARRIERS: Barriers shall be constructed according to the provisions of Section 602.03 B.4 except that there shall be no expansion or deflection joints. Make 3/4" V-grooves in all faces of the barriers at each pier and at equal spaces between substructures at approximately 10-foot spacing.

602 DECK TINING: Tining shall begin 6 inches from the beginning and the end of the deck.

604 PRESTESSED GIRDERS: The prestessed girders shall not be cast any earlier than 90 days before the deck is placed.

612 The bar fabricator shall add a prefix to all bar designations to differentiate between the different structures on this project.

612 All reinforcing steel shall be Grade 60.

622 PILING: Piling shall be driven with a steam, air, or diesel hammer with a rated energy and ram weight not less than 64,969 foot-pound-tons, as computed by the formula W(E - 14,578) + .9665, where W is the weight of the ram in tons and E is the rated hammer energy. In no case shall the ram weight be less than 2,700 pounds.

622 Toothed cast steel pile tips (ASTM A148 steel) shall be required on all pile driven.

SHOP DRAWINGS: The contractor shall submit the following shop drawings to the Engineer for approval:

1. Prestressed 81" I-Girders.

DESIGN STRENGTH:

F'C 3,000 PSI Cl. AE-3 Concrete
F'C 4,000 PSI Cl. AAE-3 Concrete
FY 60,000 PSI GR. 60 Reinforcing Steel
F'C 6,000 PSI Prestressed Girder Concrete

STATE	PROJECT NUMBER	SHEET NO.
ND	HPP-2-052(019)915	82

NOTES:
THE NUMBERS INDICATE THE NUMBER OF BLOWS DELIVERED BY A 140 LB. HAMMER FROM A HEIGHT OF 30" TO DRIVE A 2" O.D. SPLIT-BARREL SAMPLER 1'0". THE BORING DATA SHOWN IS FOR DESIGN PURPOSES ONLY. THE BORINGS ONLY REPRESENT THE EXACT LOCATION AND DEPTHS INDICATED. THE STATE ASSUMES NO RESPONSIBILITY IF SOIL CONDITIONS DIFFER BEYOND THE EXACT BORING LOCATIONS GIVEN.

BORING 13
STA = 827+98
Elev. 1410.8

DEPTH	BLOWS	
0	4	(ML/OL) SILT WITH SAND-very dark brown
2	5	(ML) SANDY SILT-dark brown, loose
4	6	(CL) LEAN CLAY- dark grayish brown, medium
7	9	(SM) SILTY SAND-grayish brown, fine with seams of fine and course poorly graded sands, wet
9		(CL) SANDY LEAN CLAY-dark grayish brown to very dark brown, rather stiff, with seams of clayey sand
14	7	(SP) POORLY GRADED SAND-grayish brown, medium to fine, loose, with a trace of gravel, waterbearing
18	5	(ML) SILT WITH SAND-gray, loose, with a trace of shells, waterbearing
20		(SM) SILTY SAND-gray, fine, loose, waterbearing
23	32	(SP-SM) POORLY GRADED SAND WITH SILT-brownish gray, mediumto fine, very dense, with a little gravel, shaley, waterbearing
28	66	(SP-SM) POORLY GRADED SAND WITH SILT-brownish gray, course to medium to fine, very dense, with a little gravel, waterbearing
	43	
	71	(SP-SM) POORLY GRADED SAND WITH SILT-brownish gray,fine very dense,waterbearing
44	61	(SM) SILTY SAND-grayish brown, fine very dense, waterbearing
48	92	(SP) POORLY GRADED SAND-brown, medium to fine, very dense, with a trace of gravel, waterbearing
53	77	
58	91	(SP) POORLY GRADED SAND WITH GRAVEL-brownish gray, course to medium to fine, very dense waterbearing
64	39	(CH) FAT CLAY-gray, very steff
69	51	(SP) POORLY GRADED SAND WITH GRAVEL-dark grayish brown, medium to course, very dense, some shale, waterbearing
	73	
80½	100/.9	(SP-SM) POORLY GADED SAND WITH SILT-gray medium to fine, very dense, with a trace of gravel, shaley, waterbearing
81		END OF BORING

BORING 14
STA = 829+21
Elev. 1402.7

DEPTH	BLOWS	
10"	3	(SM/OL) SILTY SAND-very dark brown, fine
4	5	(SM) SILTY SAND-grayish brown, fine, very loose to loose, moist
5½	4	(SP-SM) POORLY GRADED SAND WITH SILT-grayish brown medium to fine, very loose, wet
7	2	(SM) SANDY SILT-dark gray, very loose
9	4	(SM) SILTY SAND-dark gray, fine, very loose, waterbearing
12	30	(SP-SM) POORLY GRADED SAND WITH SILT-dark gray, fine to medium, very loose, with a trace of gravel, waterbearing
14	31	(CL) SANDY LEAN CLAY-gray, dense with a trace of gravel
19	41	(SM) SILTY SAND-grey, fine, very dense, water bearing
	49	(SP-SM) POORLY GRADED SAND WITH SILT AND GRAVEL (SHALEY)-brownish gray to gray, coarse to medium to fine, very dense watebearing
29	55	(SP) POORLY GRADED SAND-dark grayish brown, coarse to medium, very dense, with a little gravel waterbearing
	53	
38	56	(SP) POORLY GRADED SAND-dark grayish brown, coarse to medium to fine, very dense, with a trace of gravel, waterbearing
47	66	(SP-SM) POORLY GRADED SAND WITH SILT AND GRAVEL (SHALEY)-dark gray, coarse, very dense, waterbearing
53	57	(ML) SILT-brownish gray, very dense
55	61	(ML) SILT-brownish gray, very dense, with seams of silty sand and lean clay
	43	
64	53	(GP) POORLY GRADED GRAVEL WITH SAND-brownish gray, coarse to fine, very dense to dense, waterbearing

END OF BORING
REFUSAL ON ROCK

BORING 15
STA = 830+44 12' S AND 12' W
Elev. 1423.1

DEPTH	BLOWS	
2"	22	(CL) SANDY LEAN CLAY-grayish brown to dark grayish brown, stiff to very stiff, with a trace of gravel, frozen to 6 inches
	32	
	32	
	33	
	32	
	58	
15	42	(CL) SANDY LEAN CLAY-gray, very stiff, with a trace gravel, and with lenses of sand
	44	
23	100/.9	(CL) SANDY LEAN CLAY-grayish brown, very stiff, with a trace of gravel
27	100/.9	(SC) CLAYEY SAND-gray, medium to fine, very dense with a trace of gravel
31		END OF BORING

BORING 16
STA = 831+67 15' W
Elev. 1449.8

DEPTH	BLOWS	
	24	(CL) SANDY LEAN CLAY-grayish brown to dark grayish brown stiff to very stiff, with a trace of gravel, and with occaional cobbles and boulders
	48	
	33	
	100/.8	
	46	
	35	
	77	
23	48	(CL) SANDY LEAN CLAY-gray, very stiff to stiff, with a trace of gravel
32	30	(CL) SANDY LEAN CLAY-gray, very stiff, with a trace of gravel
	79	
	42	
45½	36	(SC) CLAYEY SAND-brownish gray, medium to fine, very dense, with a trace of gravel
	100/.8	
56	63	END OF BORING

THE BORING DATA SHOWN IS FOR THE NORTH DAKOTA DEPARTMENT OF TRANSPORTATION'S (NDDOT) DESIGN AND ESTIMATING PURPOSES ONLY. THE BORING LOGS ARE ONLY REPRESENTATIVE OF THE EXACT LOCATION FROM WHICH THE SAMPLES WERE TAKEN AND INTERPRETATION BETWEEN SAMPLE LOCATIONS IS DISCOURAGED. THE NDDOT ASSUMES NO RESPONSIBILITY IF THE SOIL CONDITIONS ENCOUNTERED DURING CONSTRUCTION DIFFER FROM THOSE SHOWN.

FURTHER SOIL INFORMATION MAY BE AVAILABLE AT:

NDDOT
MATERIALS AND RESEARCH DIVISION
300 AIRPORT ROAD
BISMARCK, ND 58504-6005
PHONE (701)-328-6907

interstate engineering, inc.
ENGINEERING SURVEYING PLANNING

PIPESTEM CREEK
HWY 52 BYPASS
JAMESTOWN

BORING LOG

SITE 2 52-915.716-4

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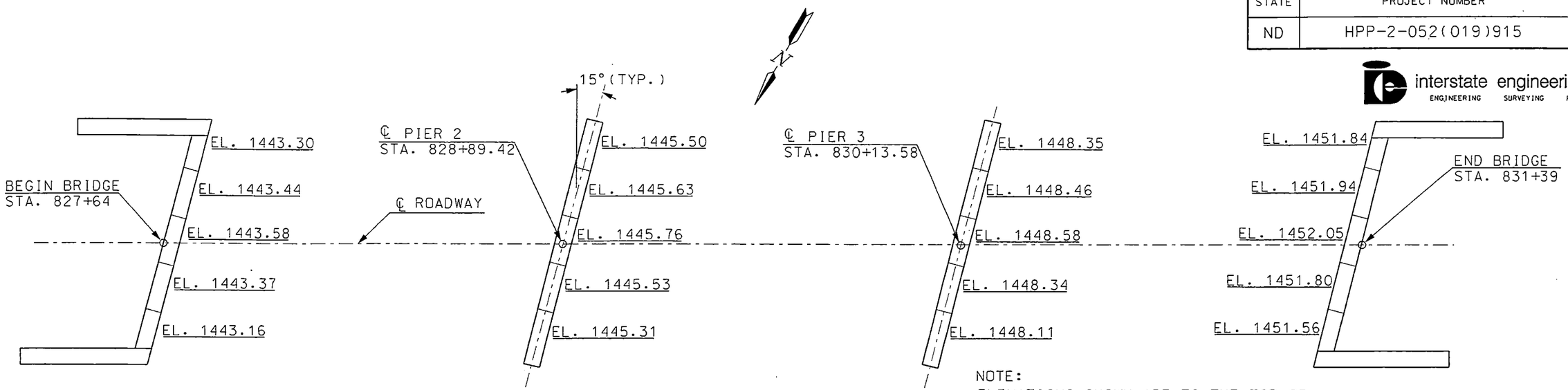
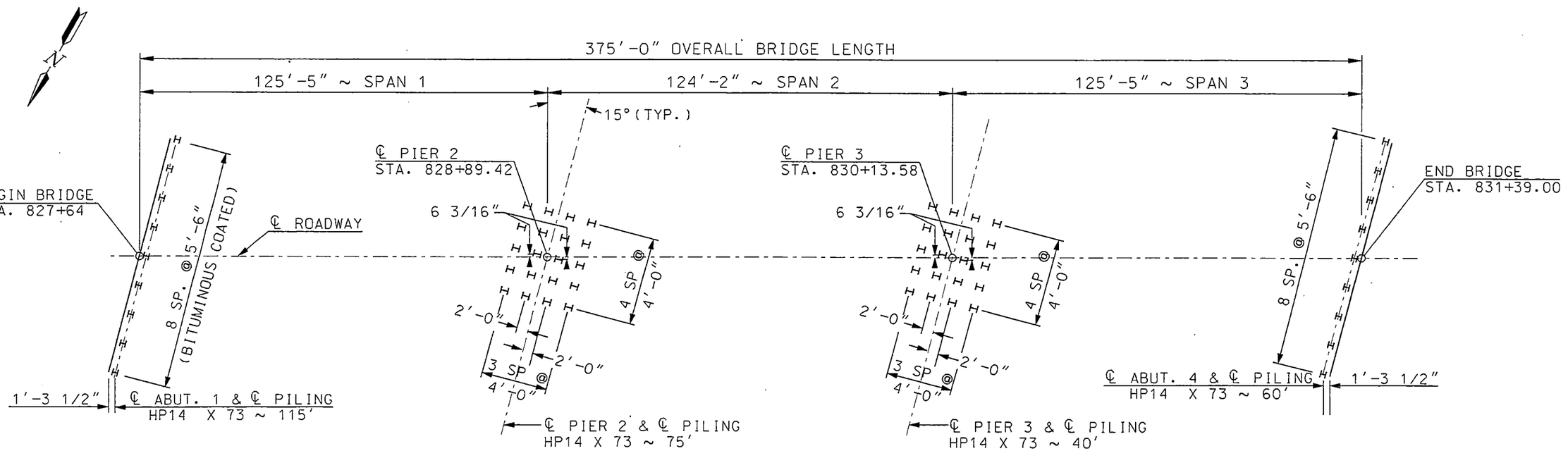
STATE	PROJECT NUMBER	SHEET NO.
ND	HPP-2-052(019)915	83

interstate engineering, inc.
ENGINEERING SURVEYING PLANNING



BEARING ELEVATIONS

NOTE:
ELEVATIONS SHOWN ARE TO THE TOP OF FINISHED CONCRETE.



PILING LAYOUT

NOTE:
HP 14 X 73 PILE SHALL BE DRIVEN TO 97 TONS

PIPESTEM CREEK
HWY 52 BYPASS
JAMESTOWN

BEARING ELEVATIONS
& PILING LAYOUT

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5/16/2002

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SITE 2

52-915.716-5

REVISED 5-29-02

STATE	PROJECT NUMBER	SHEET NO.
ND	HPP-2-052(019)915	84

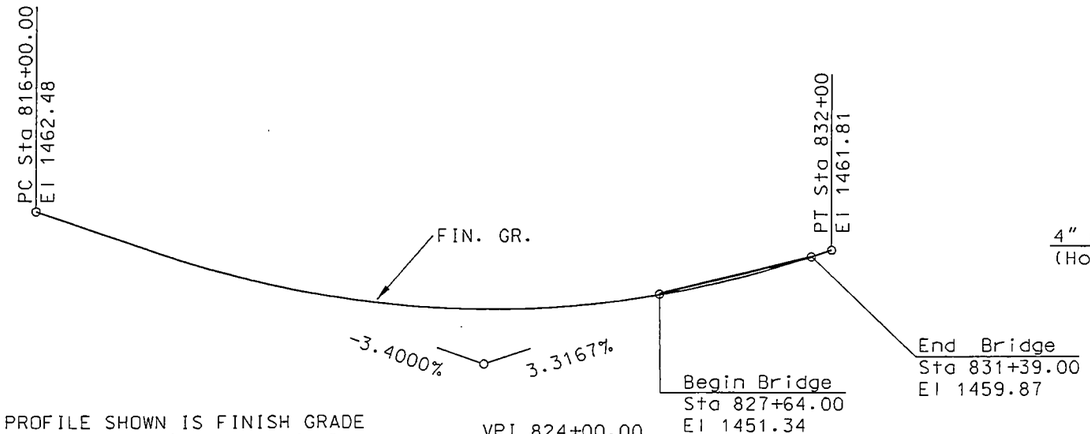
interstate engineering, inc.
ENGINEERING SURVEYING PLANNING

C.L. GIRDER 1	C.L. GIRDER 2	C.L. GIRDER 3	C.L. GIRDER 4	C.L. GIRDER 5
1451.06	1451.20	1451.34	1451.13	1450.92
1451.09	1451.23	1451.37	1451.16	1450.95
.31	.45	.59	.38	1451.17
.54	.67	.81	.60	.39
.76	.90	1452.03	.82	.61
.99	1452.12	.25	1452.04	.83
1452.21	.34	.47	.26	1452.04
.42	.55	.69	.47	.25
.63	.77	.90	.68	.46
.85	.98	1453.11	.89	.67
1453.06	1453.19	.32	1453.09	.87
1453.27	1453.40	1453.53	1453.31	1453.08
1453.29	1453.42	1453.55	1453.33	1453.10
.58	.70	.83	.61	.38
.87	.99	1454.12	.89	.67
1454.16	1454.28	.41	1454.18	.95
.44	.57	.69	.46	1454.24
.73	.85	.97	.74	.52
1455.01	1455.13	1455.25	1455.02	.79
.29	.41	.53	.29	1455.06
.56	.68	.80	.57	.33
.84	.95	1456.07	.84	.61
1456.12	1456.23	1456.35	1456.11	1455.88
1456.14	1456.26	1456.37	1456.14	1455.90
.49	.61	.72	.49	1456.25
.85	.96	1457.07	.84	.60
1457.20	1457.31	.42	1457.19	.95
.55	.66	.77	.53	1457.29
.90	1458.01	1458.12	.88	.64
1458.24	.35	.46	1458.22	.98
.59	.69	.80	.56	1458.31
.93	1459.03	1459.14	.89	.65
1459.27	.37	.47	1459.23	.98
1459.61	1459.71	1459.82	1459.57	1459.32
1459.66	1459.77	1459.87	1459.62	1459.38

1'-9" | 10 Eq Sp = 123'-2" | 10 Eq Sp = 123'-2" | 10 Eq Sp = 123'-2" | 1'-9"

Begin Bridge | End Of Beam | 1'-0" End Of Beam | End Of Beam | 1'-0" End Of Beam | End Of Beam | End Of Beam | End Bridge

SCREED ELEVATIONS



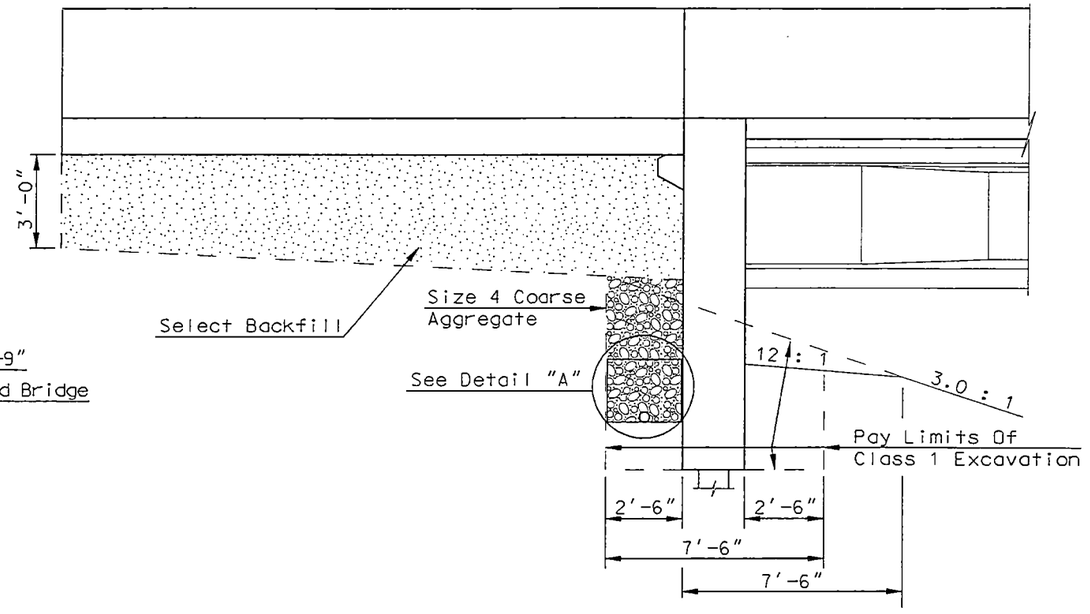
NOTE: PROFILE SHOWN IS FINISH GRADE WHICH IS 1.92' ABOVE THE GRADING GRADE.

VERTICAL CURVE DATA

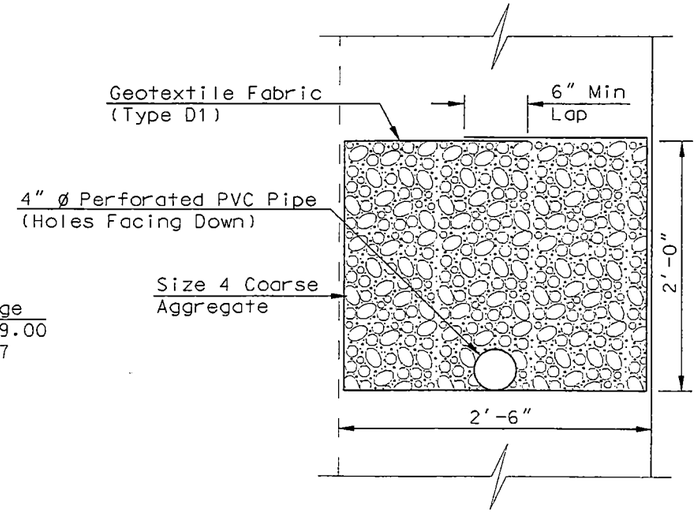
NOTE:

The cost to furnish and place the Select Backfill, Coarse Aggregate, Geotextile Fabric, Perforated Pipe, Non-perforated Pipe, Headwalls and Rodent Screens shall be included in the pay item for "Concrete Bridge Approach Slab."

See also, "Abutment Underdrain Details" Dwg 52-915.716-7



DETAIL AT ABUTMENT



DETAIL "A"

PIPESTEM CREEK
HWY 52 BYPASS
JAMESTOWN

SCREED ELEVATION,
DETAIL AT ABUTMENT,
& VERTICAL CURVE DATA

SITE 2 52-915.716-6

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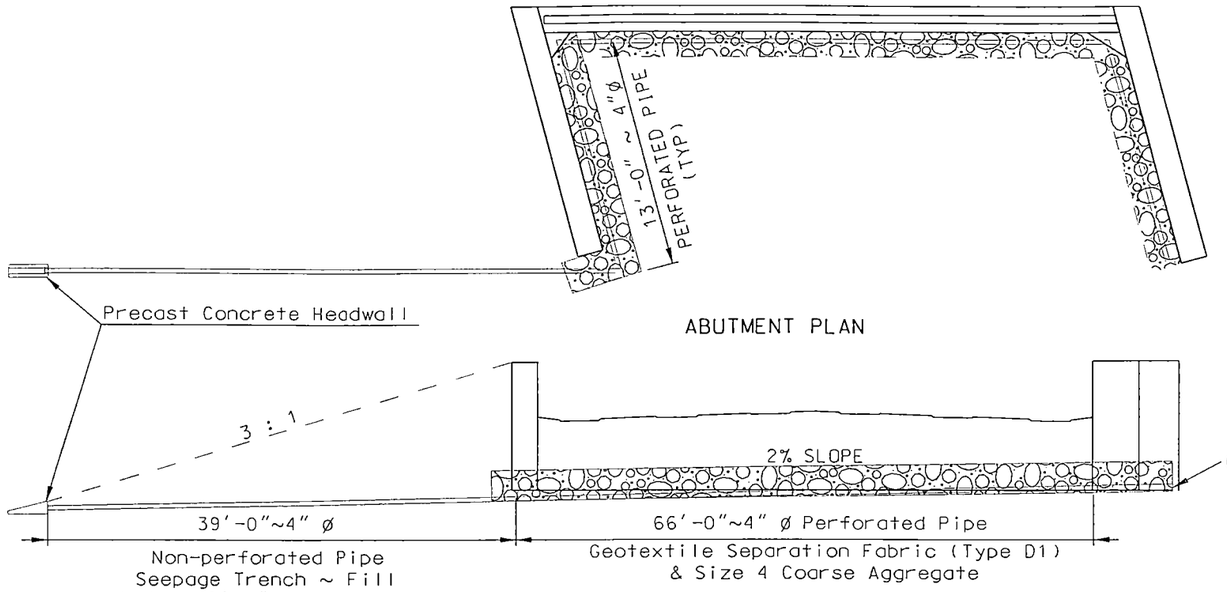
STATE	PROJECT NUMBER	SHEET NO.
ND	HPP-2-052(019)915	85

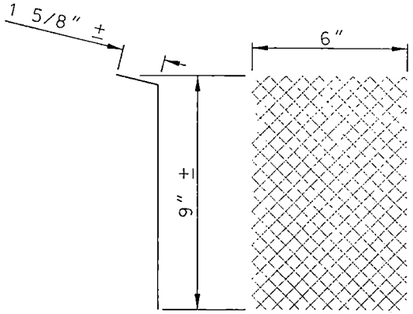
REVISED 8-6-02

interstate engineering, inc.
ENGINEERING SURVEYING PLANNING



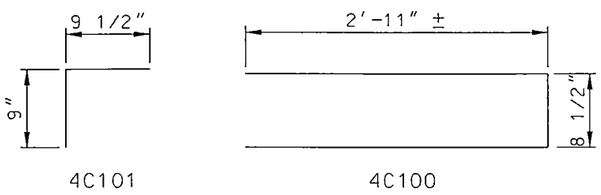
ABUTMENT PLAN

BACK FACE OF ABUTMENT

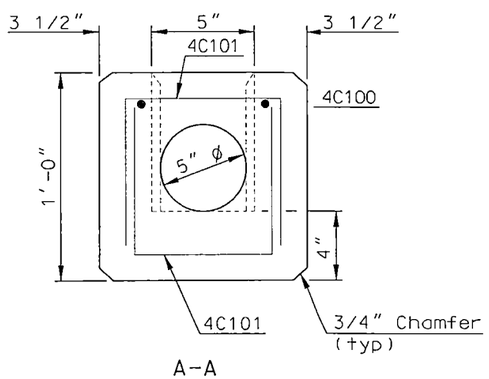


SIDE VIEW FRONT VIEW

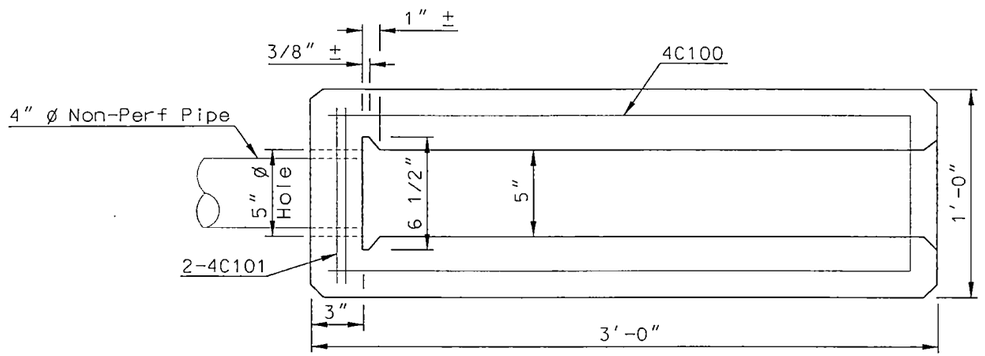
RODENT SCREEN DETAILS



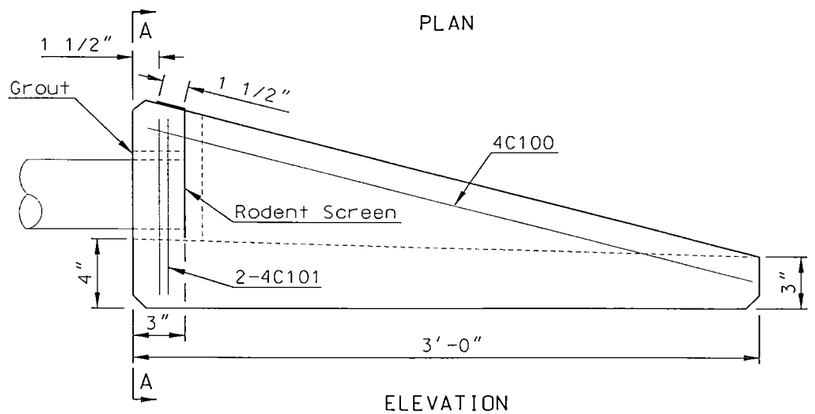
BENT BAR DETAILS



A-A



PLAN



ELEVATION

PRECAST CONCRETE HEADWALL DETAILS

NOTES:

The dimensions for the rodent screen are approximate to allow for bending and a snug fit into the slot in the headwall.

The rodent screen shall be fabricated from flattened, expanded metal with screen openings of approximately 0.25 square inches. The screen shall be 16 Ga. metal and be hot dip galvanized after fabrication.

QUANTITIES

PIPESTEM CREEK
HWY 52 BYPASS
JAMESTOWN

ABUTMENT UNDERDRAIN

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8/6/2002

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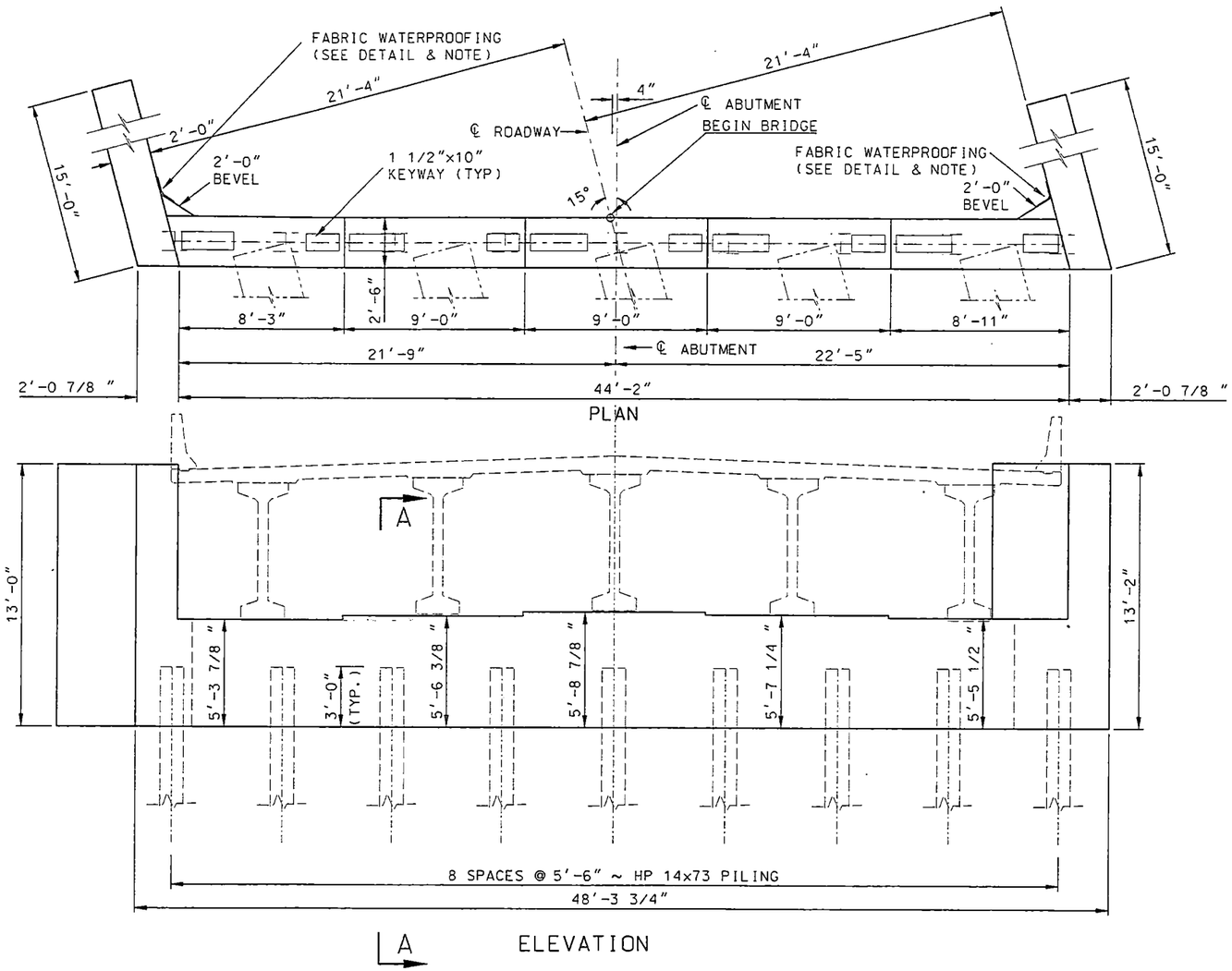
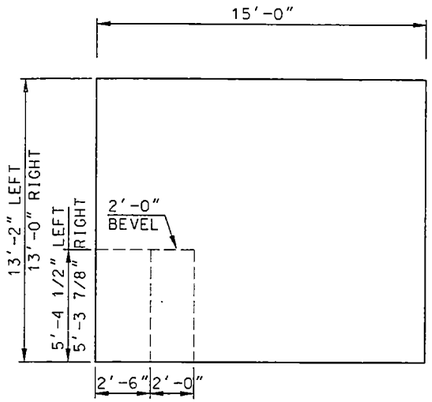
SITE 2

52-915.716-7

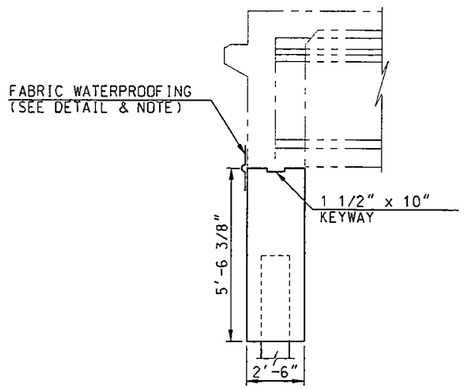
STATE	PROJECT NUMBER	SHEET NO.
ND	HPP-2-052(019)915	86

interstate engineering, inc.
ENGINEERING SURVEYING PLANNING





WING ELEVATION



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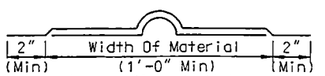

Fabric waterproofing shall be applied in accordance with Section 740 of the NDDOT Specifications.

All material and work shall be included in the pay item "Class AE-3 Concrete."

TWO-PLY FABRIC
WATERPROOFING DETAIL

QUANTITIES
SEE DWG 52-915.716-9

PIPESTEM CREEK
HWY 52 BYPASS
JAMESTOWN

ABUTMENT 1 DETAIL
(SHOWING DIMENSIONS)

SITE 2 52-915.716-8

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5/16/2002

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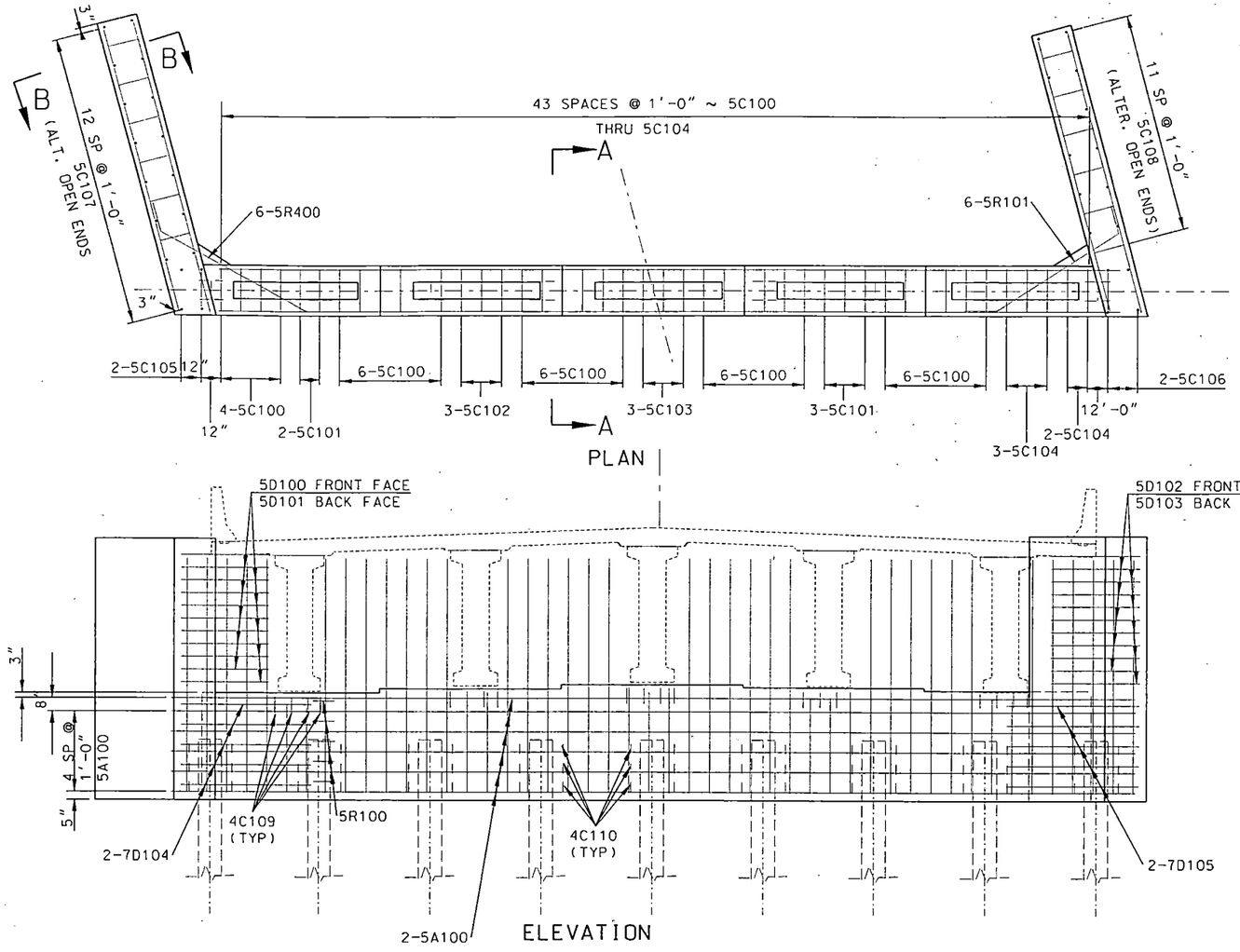
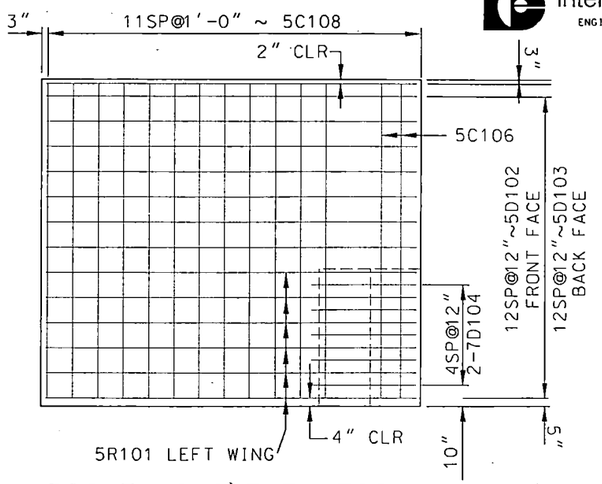
REVISED 8-5-02

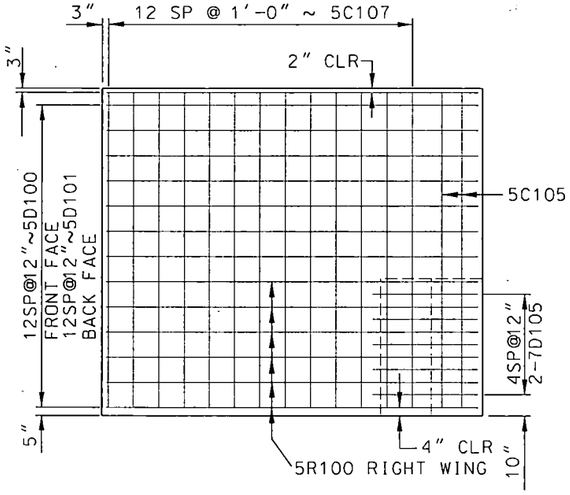
STATE	PROJECT NUMBER	SHEET NO.
ND	HPP-2-052(019)915	87

interstate engineering, inc.
ENGINEERING SURVEYING PLANNING

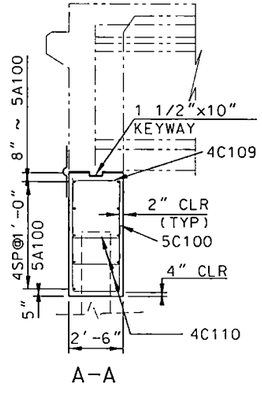




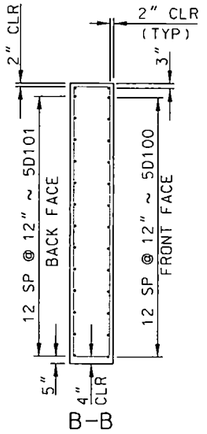
RIGHT WING ELEVATION



LEFT WING ELEVATION



A-A



B-B

QUANTITIES	
CLASS AE-3 CONCRETE	52.5 CY
REINFORCING STEEL	4,353 LBS

PIPESTEM CREEK
HWY 52 BYPASS
JAMESTOWN

ABUTMENT 1 DETAILS
(SHOWING DIMENSIONS)

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8/6/2002

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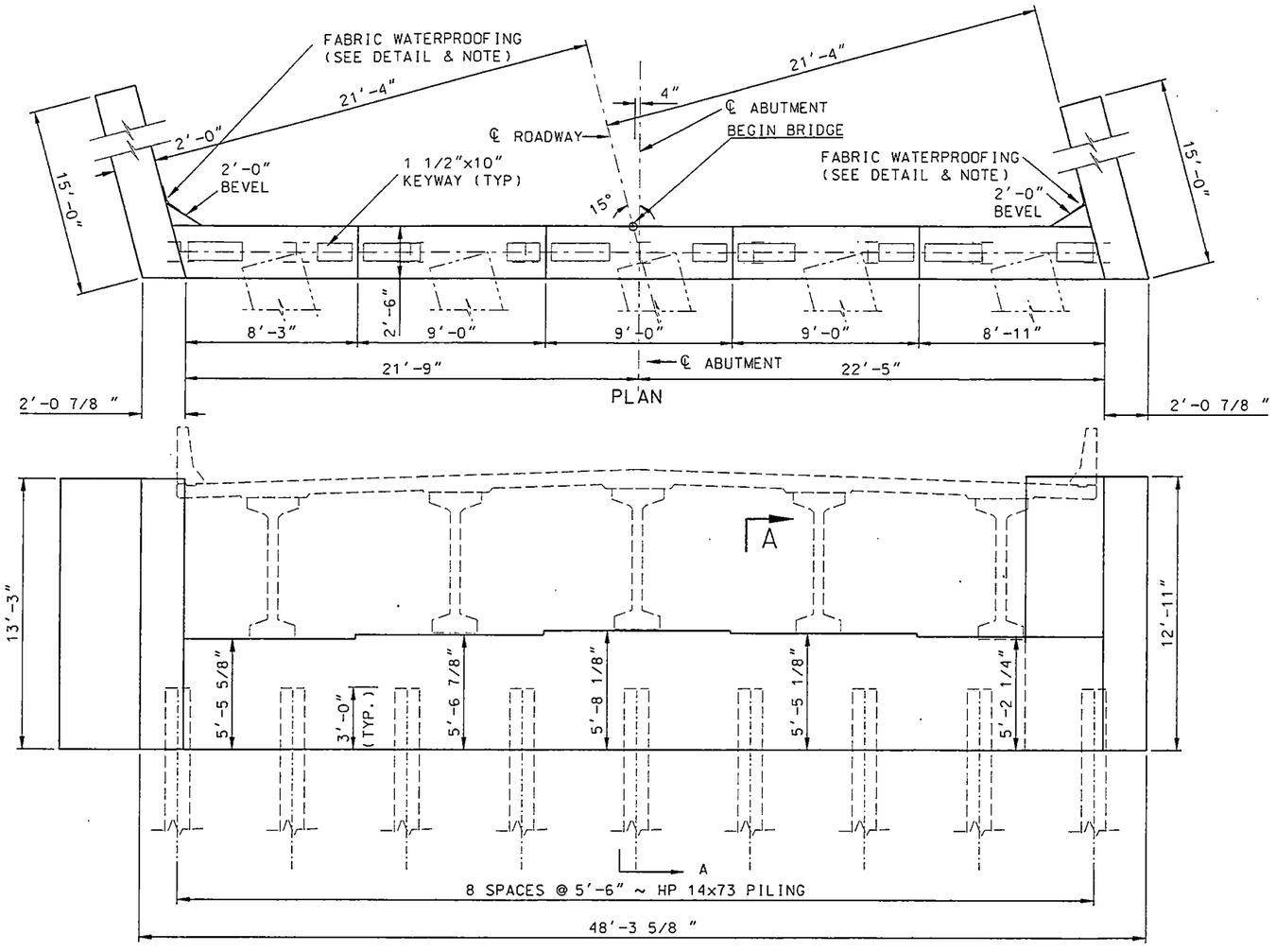
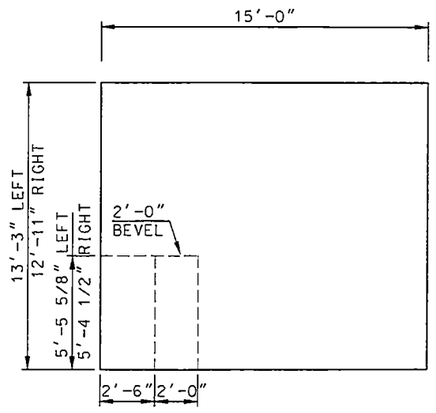
SITE 2

52-915.716-9

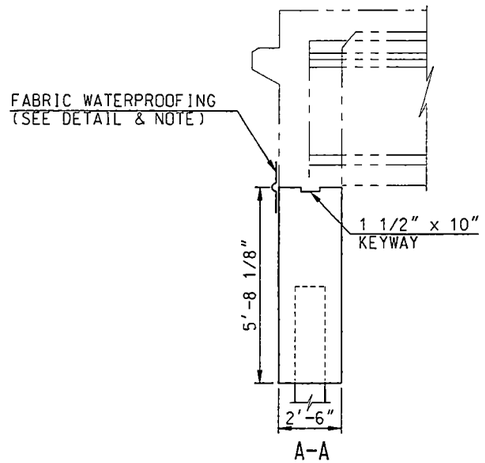
STATE	PROJECT NUMBER	SHEET NO.
ND	HPP-2-052(019)915	88

interstate engineering, inc.
ENGINEERING SURVEYING PLANNING





WINGWALL ELEVATION



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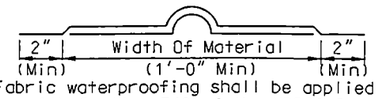

Fabric waterproofing shall be applied in accordance with Section 740 of the NDDOT Specifications.

All material and work shall be included in the pay item "Class AE-3 Concrete."

TWO-PLY FABRIC
WATERPROOFING DETAIL

QUANTITIES
SEE DWG 52-915.716-11

PIPESTEM CREEK
HWY 52 BYPASS
JAMESTOWN

ABUTMENT 4 DETAIL
(SHOWING DIMENSIONS)

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5/16/2002

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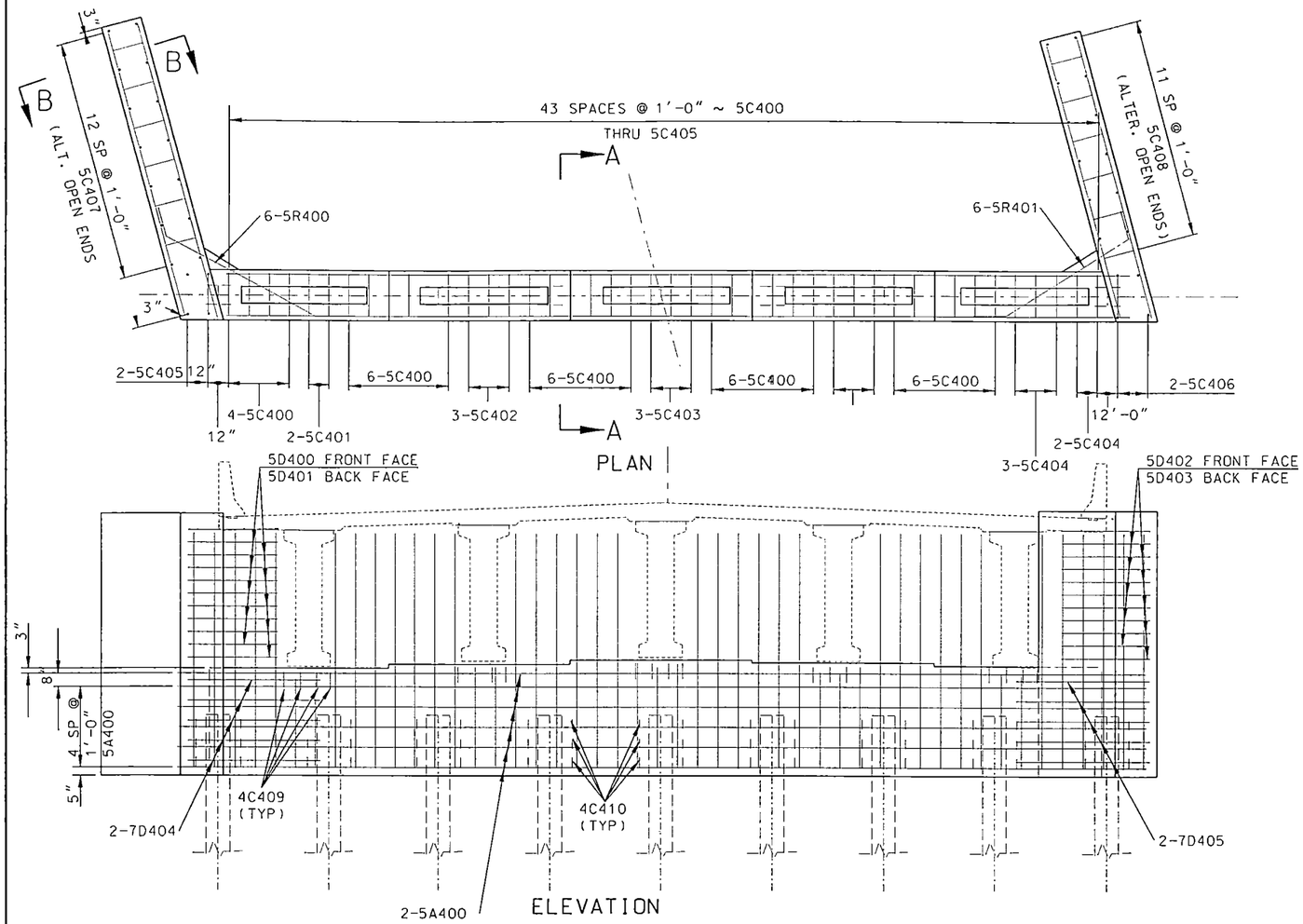
SITE 2

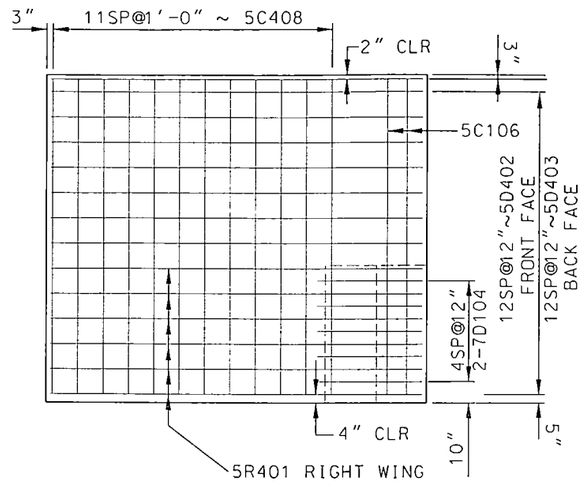
52-915.716-10

REVISED 8-5-02

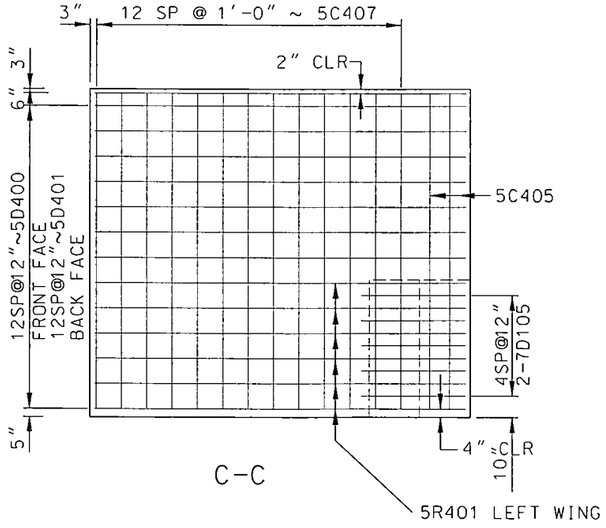
STATE	PROJECT NUMBER	SHEET NO.
ND	HPP-2-052(019)915	89

interstate engineering, inc.
ENGINEERING SURVEYING PLANNING

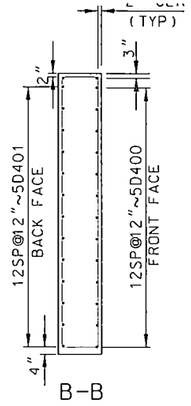




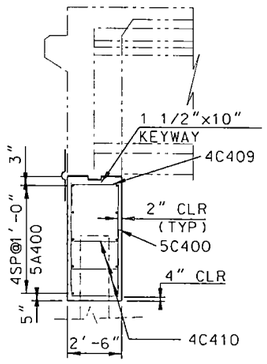
RIGHT WING ELEVATION



LEFT WING ELEVATION



B-B



A-A

QUANTITIES	
CLASS AE-3 CONCRETE	52.0 CY
REINFORCING STEEL	4,350 LBS

PIPESTEM CREEK
HWY 52 BYPASS
JAMESTOWN

ABUTMENT 4 DETAILS
(SHOWING DIMENSIONS)

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8/6/2002

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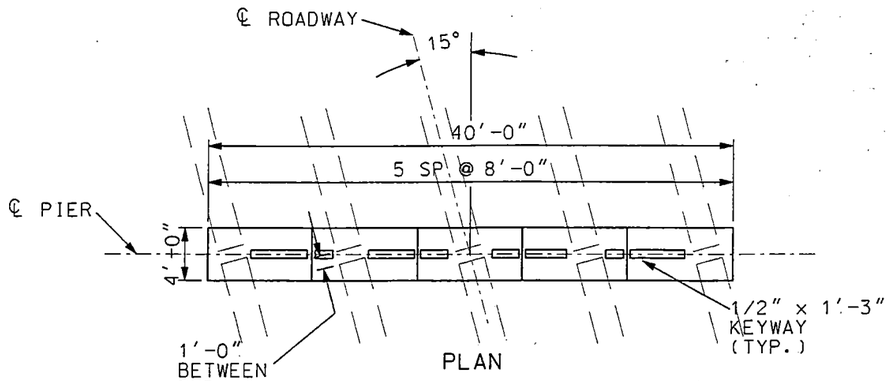
SITE 2

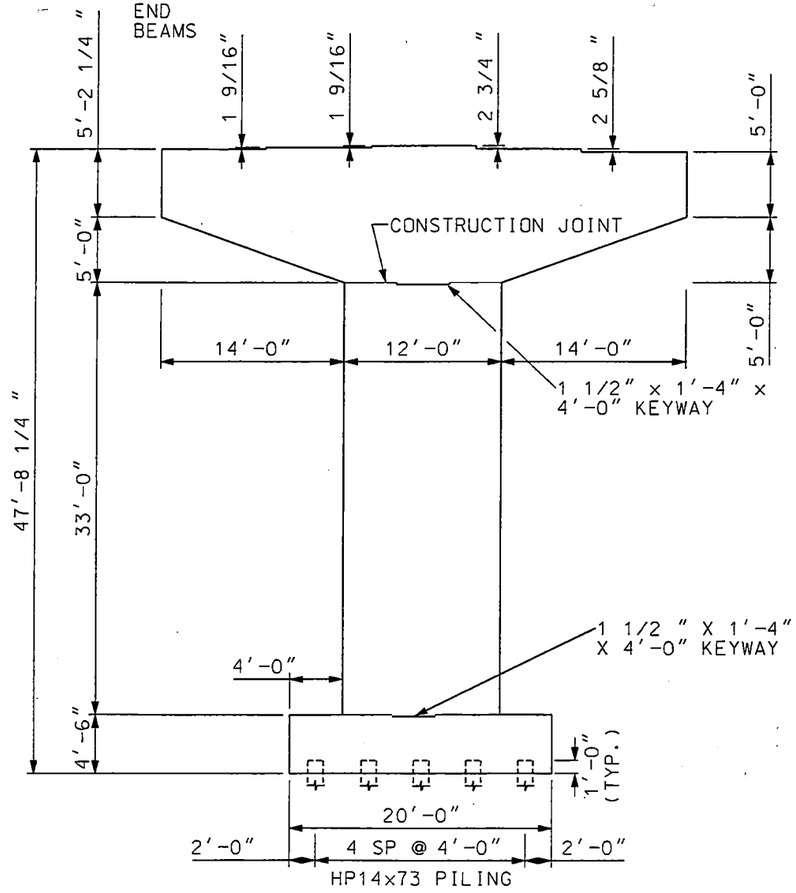
52-915.716-11

REVISED 5-29-02

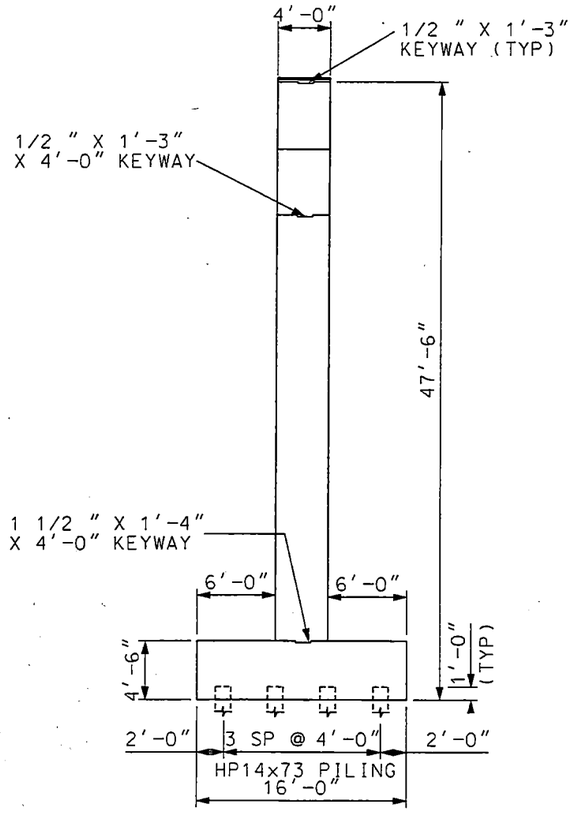
STATE	PROJECT NUMBER	SHEET NO.
ND	HPP-2-052(019)915	90

interstate engineering, inc.
ENGINEERING SURVEYING PLANNING





ELEVATION



END VIEW

QUANTITIES

SEE DWG 52-915.716-15

PIPESTEM CREEK
HWY 52 BYPASS
JAMESTOWN

PIER 2 DETAILS
(SHOWING DIMENSIONS)

SITE 2 52-915.716-12

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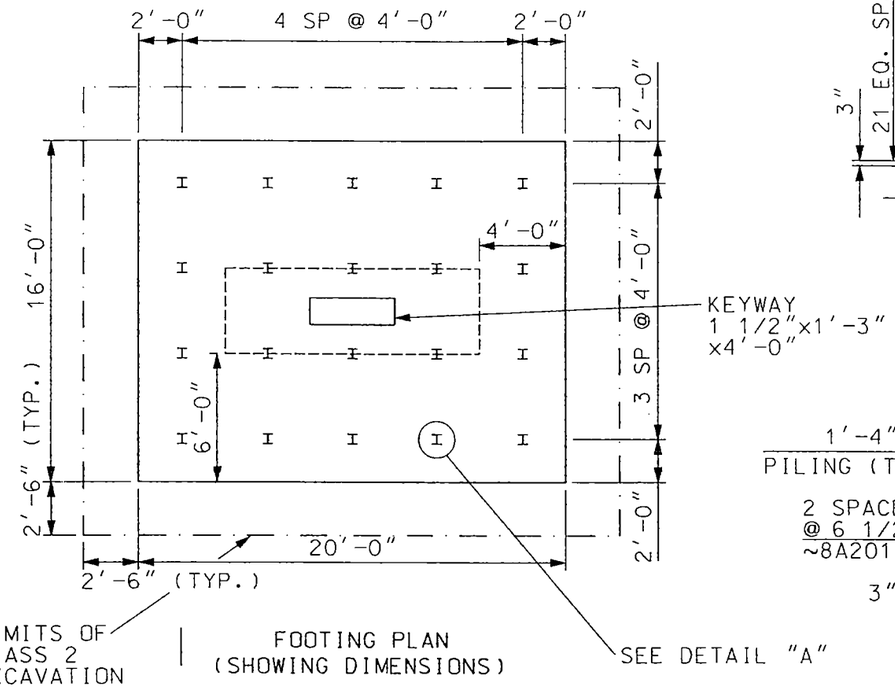
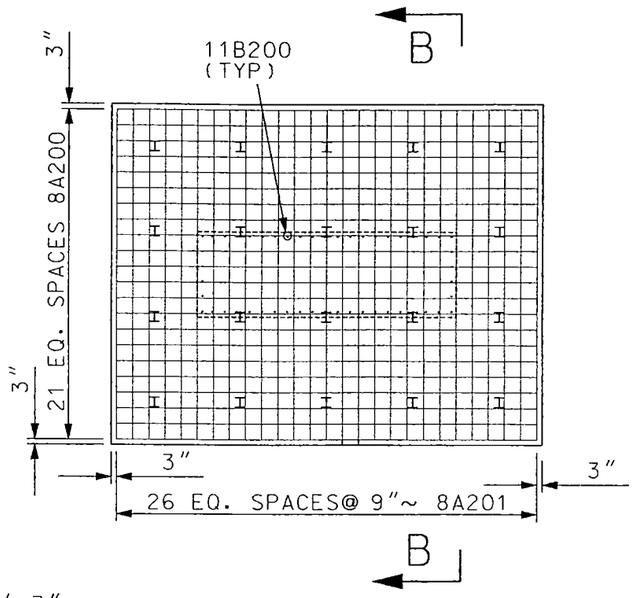
REVISED 8-5-02

STATE	PROJECT NUMBER	SHEET NO.
ND	HPP-2-052(019)915	91

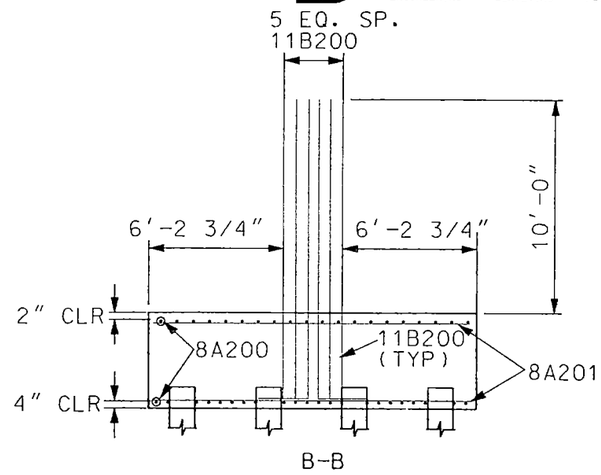
interstate engineering, inc.
ENGINEERING SURVEYING PLANNING



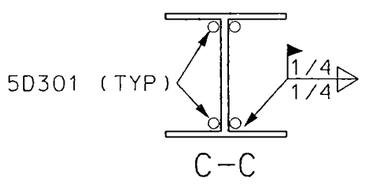
FOOTING PLAN
(SHOWING DIMENSIONS)



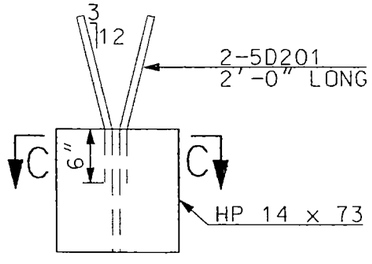
FOOTING PLAN
(SHOWING TOP REINFORCING)



B-B

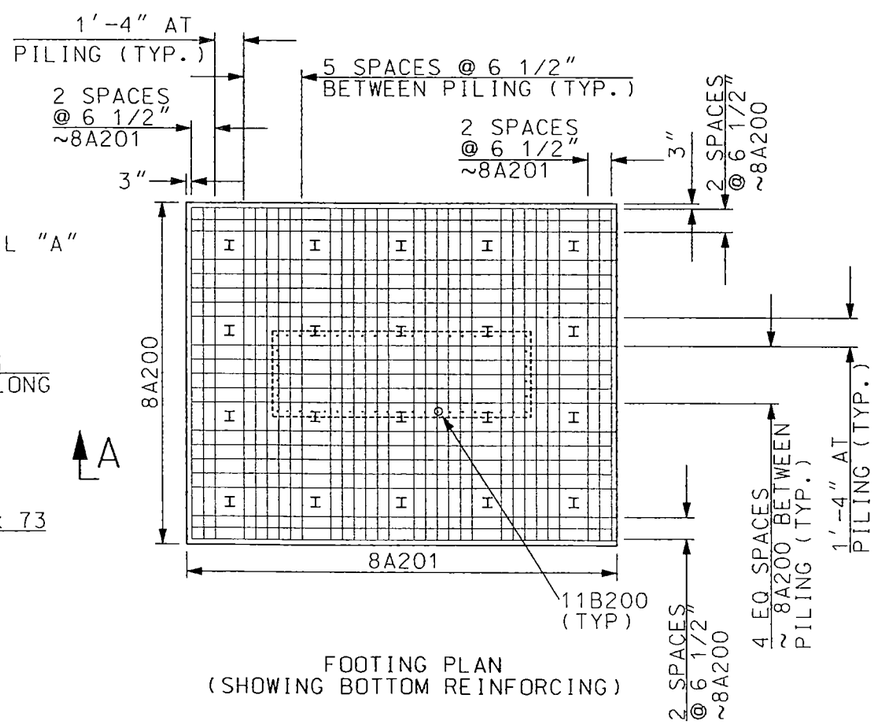


C-C

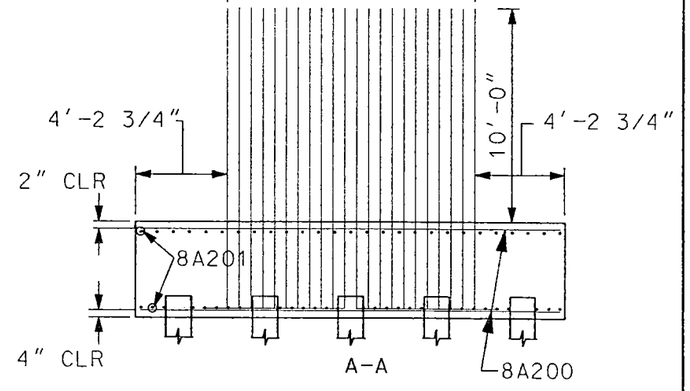


DETAIL A

THE COST OF WELDING THE D-BARS TO THE PILE SHALL BE INCIDENTAL TO THE BID PRICE FOR "STEEL PILING HP 14 x 73".



FOOTING PLAN
(SHOWING BOTTOM REINFORCING)



A-A

QUANTITIES
SEE DWG 52-915.716-15

PIPESTEM CREEK
HWY 52 BYPASS
JAMESTOWN

PIER 2 FOOTING DETAILS
(SHOWING REINFORCING)

SITE 2

52-915.716-13

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08/08/2002

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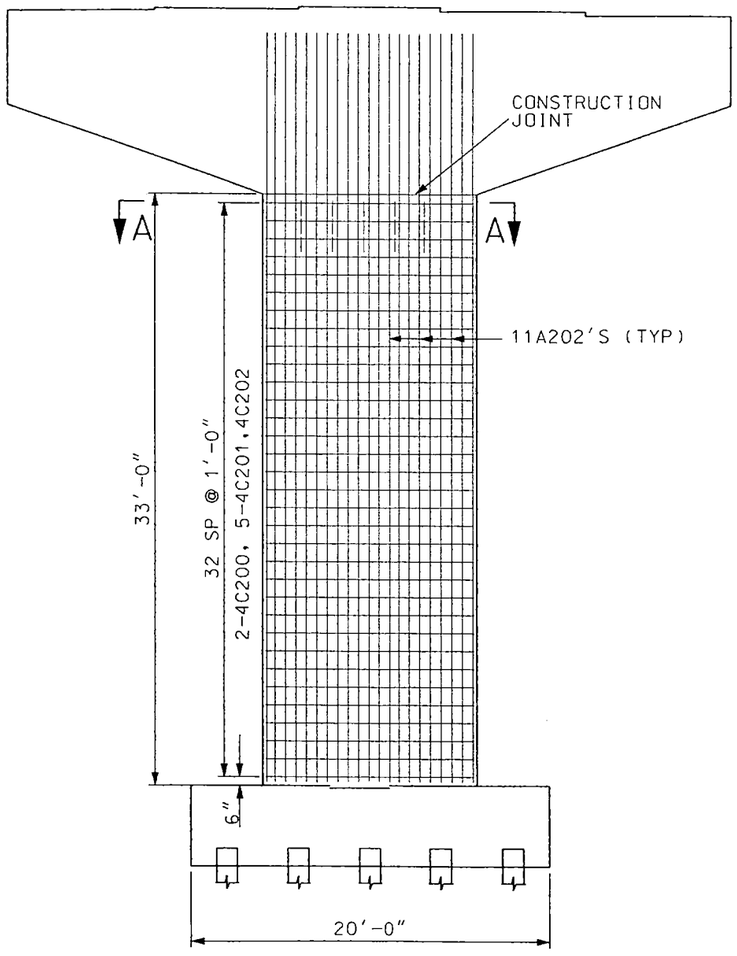
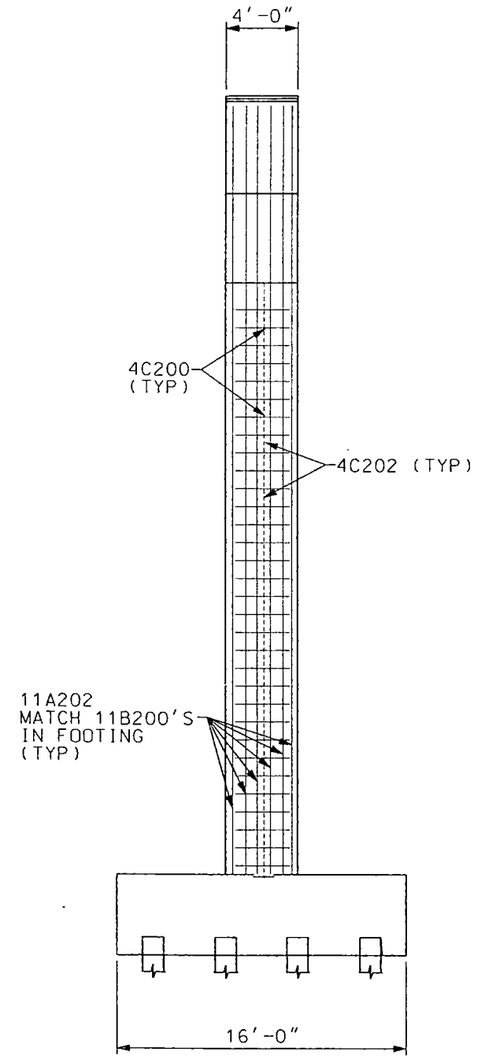
STATE	PROJECT NUMBER	SHEET NO.
ND	HPP-2-052(019)915	92

REVISED 8-5-02

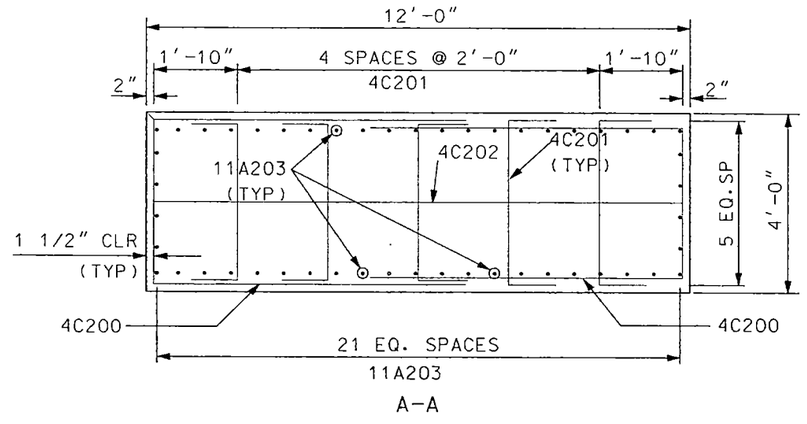
interstate engineering, inc.
ENGINEERING SURVEYING PLANNING



PIER COLUMN ELEVATION



END VIEW



A-A

QUANTITIES
SEE DWG 52-915.716-15

PIPESTEM CREEK
HWY 52 BYPASS
JAMESTOWN

PIER 2 DETAILS
(SHOWING REINFORCING)

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08/08/2002

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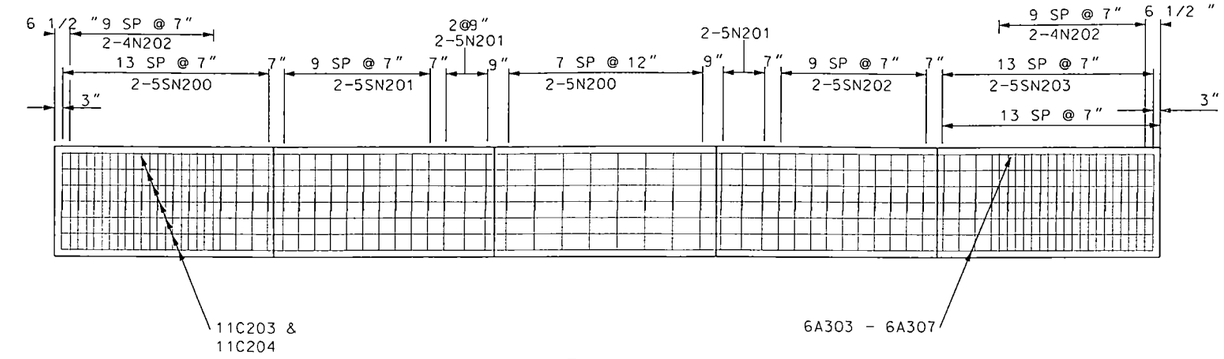
SITE 2

52-915.716-14

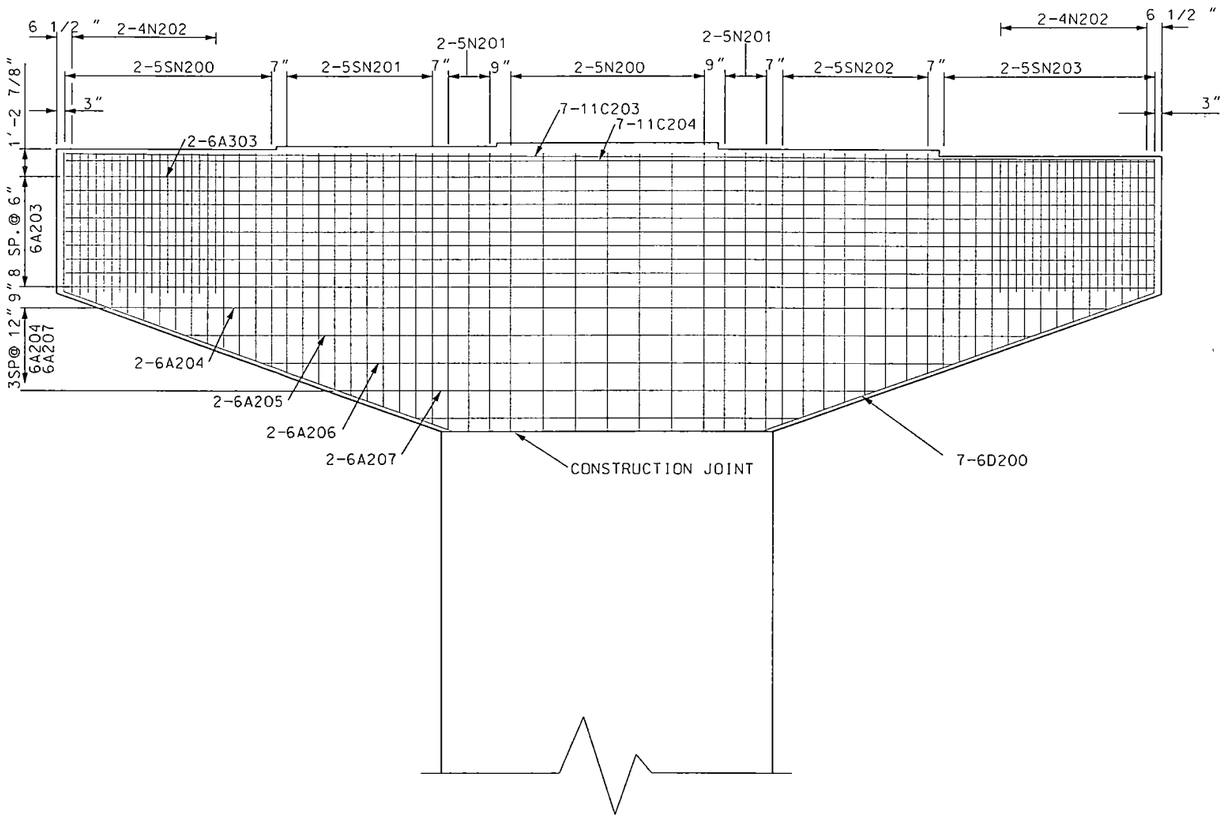
REVISED 8-5-02

STATE	PROJECT NUMBER	SHEET NO.
ND	HPP-2-052(019)915	93

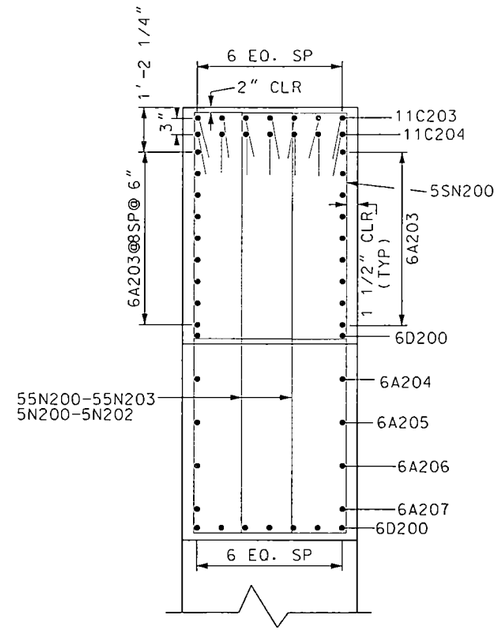
interstate engineering, inc.
ENGINEERING SURVEYING PLANNING



PLAN



ELEVATION



END VIEW

QUANTITIES	
CLASS AE-3 CONCRETE	153.4 CY
REINFORCING STEEL	31,012 LBS

PIPESTEM CREEK
HWY 52 BYPASS
JAMESTOWN

PIER CAP 2 DETAILS
(SHOWING REINFORCING)

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8/6/2002

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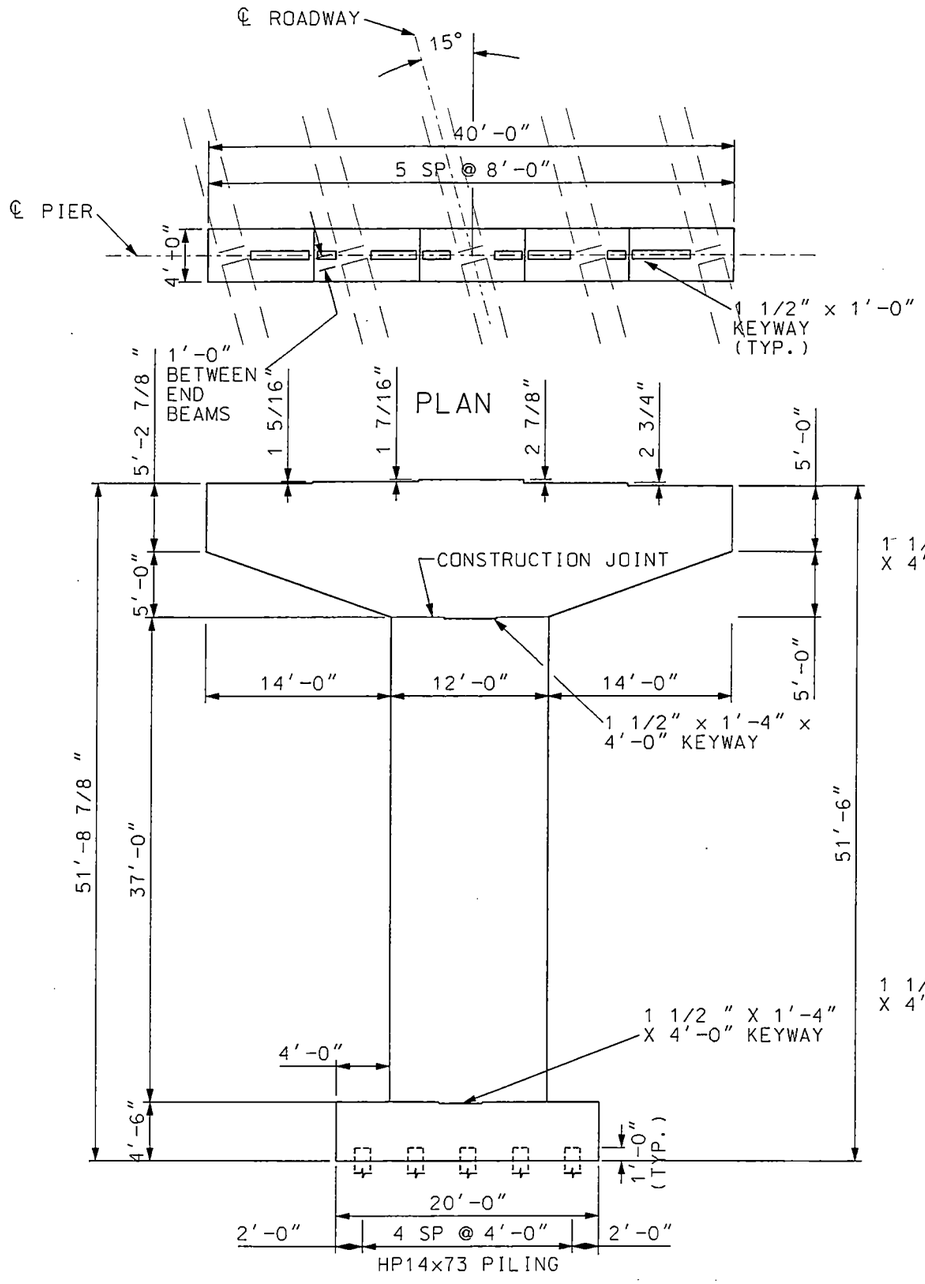
SITE 2

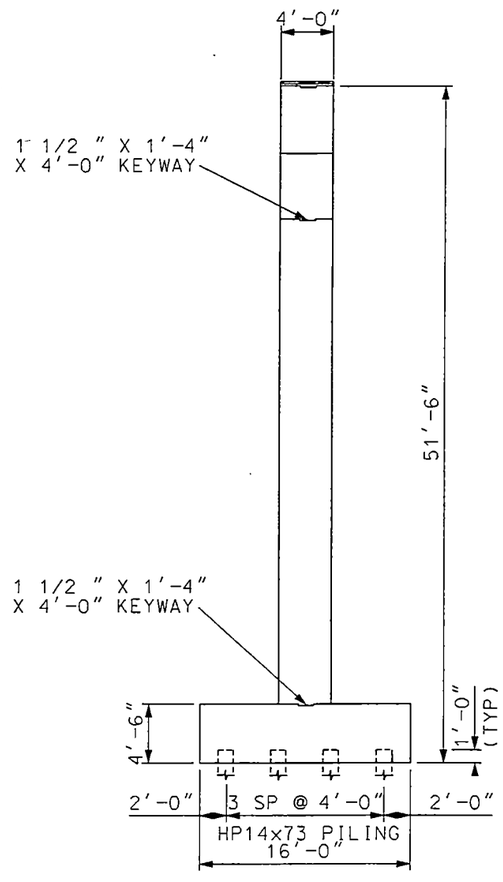
52-915.716-15

REVISED 5-29-02

STATE	PROJECT NUMBER	SHEET NO.
ND	HPP-2-052(019)915	94

interstate engineering, inc.
ENGINEERING SURVEYING PLANNING





QUANTITIES

SEE DWG 52-915.716-19

PIPESTEM CREEK
HWY 52 BYPASS
JAMESTOWN

PIER 3 DETAILS
(SHOWING DIMENSIONS)

SITE 2 52-915.716-16

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05/29/2002

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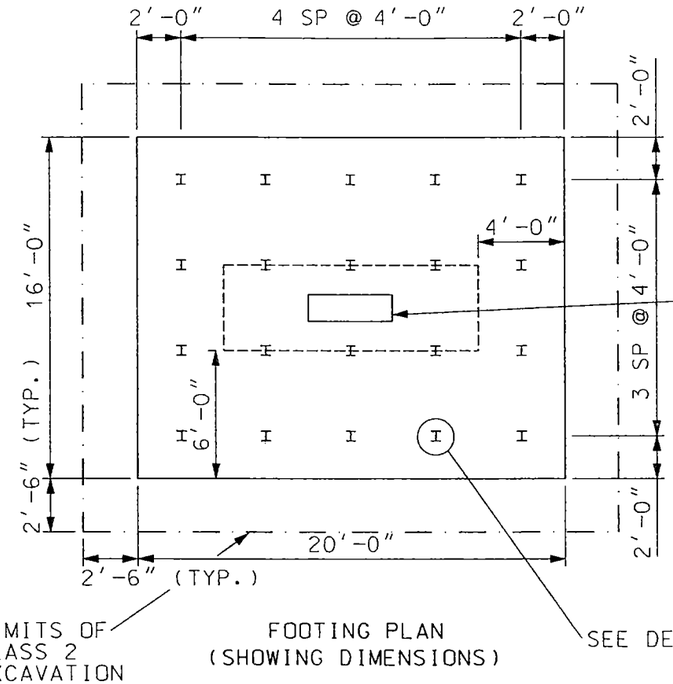
REVISED 8-5-02

STATE	PROJECT NUMBER	SHEET NO.
ND	HPP-2-052(019)915	95

interstate engineering, inc.
ENGINEERING SURVEYING PLANNING

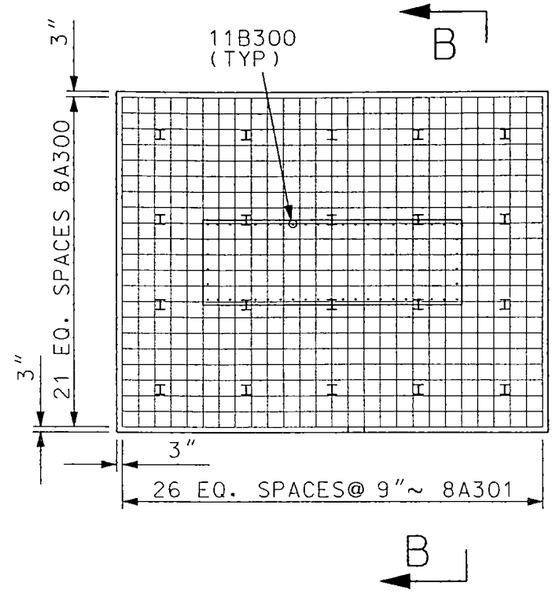


KEYWAY
1 1/2"x1'-3"
x4'-0"

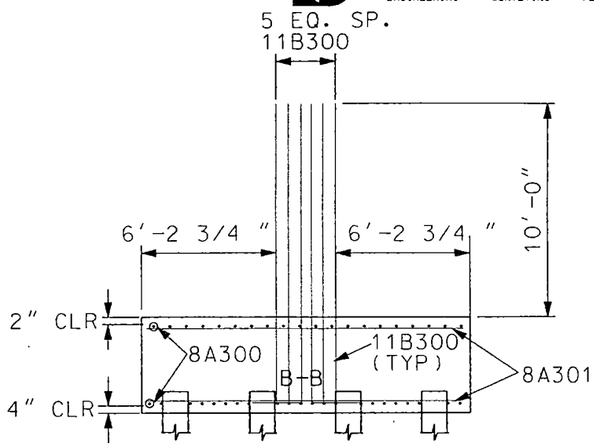
LIMITS OF CLASS 2 EXCAVATION

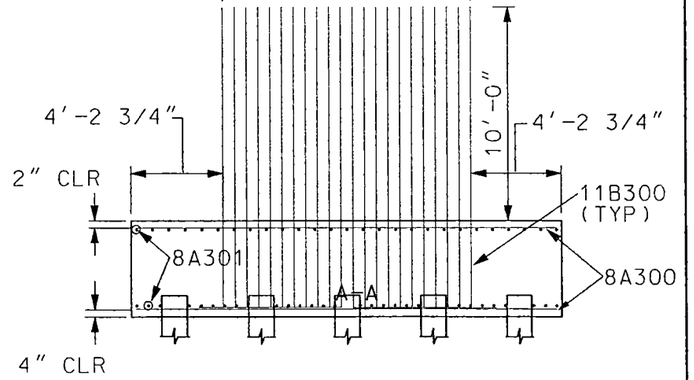
FOOTING PLAN
(SHOWING DIMENSIONS)

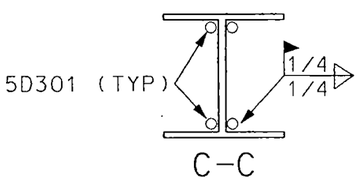
SEE DETAIL "A"

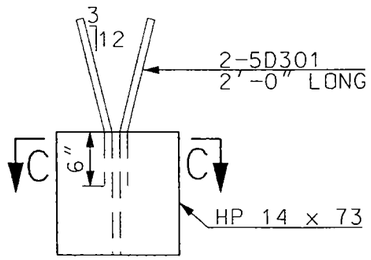


FOOTING PLAN
(SHOWING TOP REINFORCING)



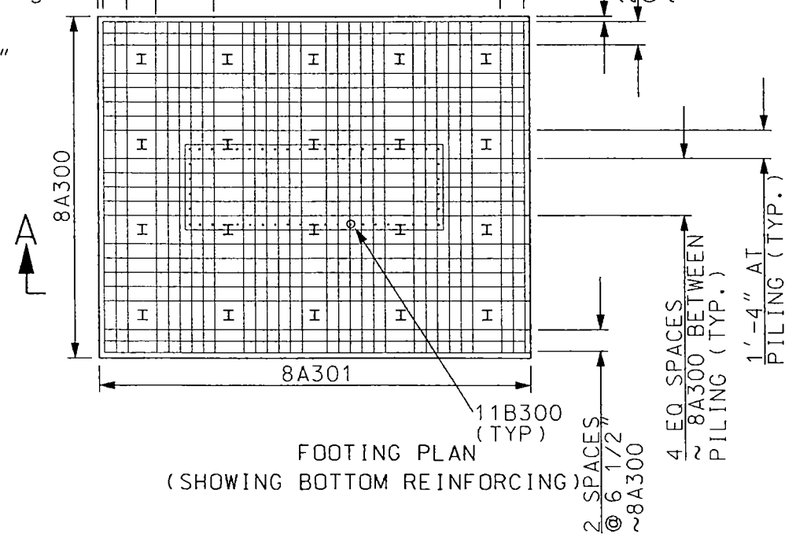






DETAIL A

THE COST OF WELDING THE D-BARS TO THE PILE SHALL BE INCIDENTAL TO THE BID PRICE FOR "STEEL PILING HP 14 x 73".



FOOTING PLAN
(SHOWING BOTTOM REINFORCING)

QUANTITIES
SEE DWG 52-915.716-15

PIPESTEM CREEK
HWY 52 BYPASS
JAMESTOWN

PIER 3 FOOTING DETAILS
(SHOWING REINFORCING)

SITE 2 52-915.716-17

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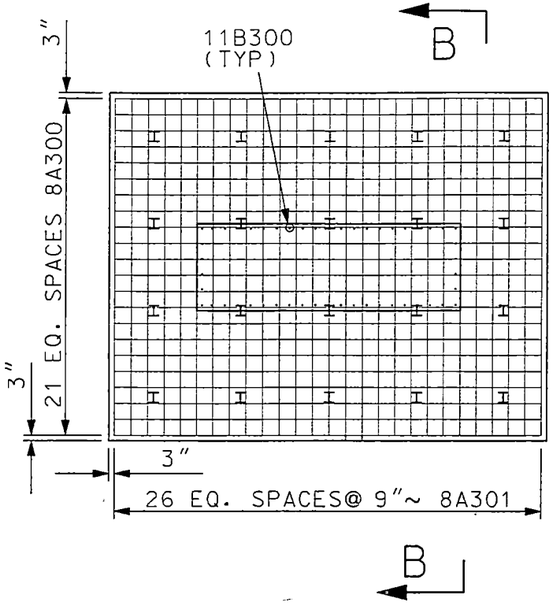
REVISED 5-29-02

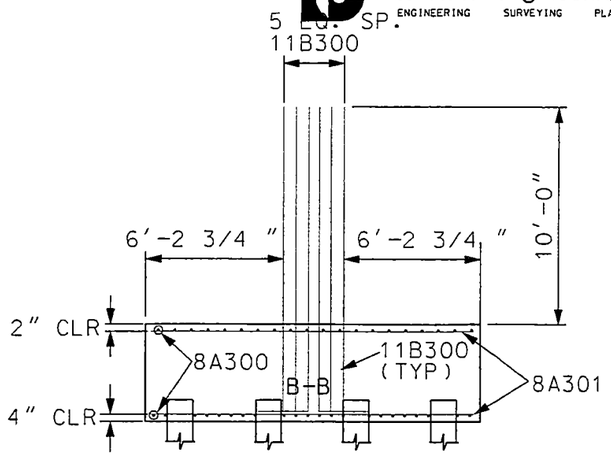
STATE	PROJECT NUMBER	SHEET NO.
ND	HPP-2-052(019)915	95

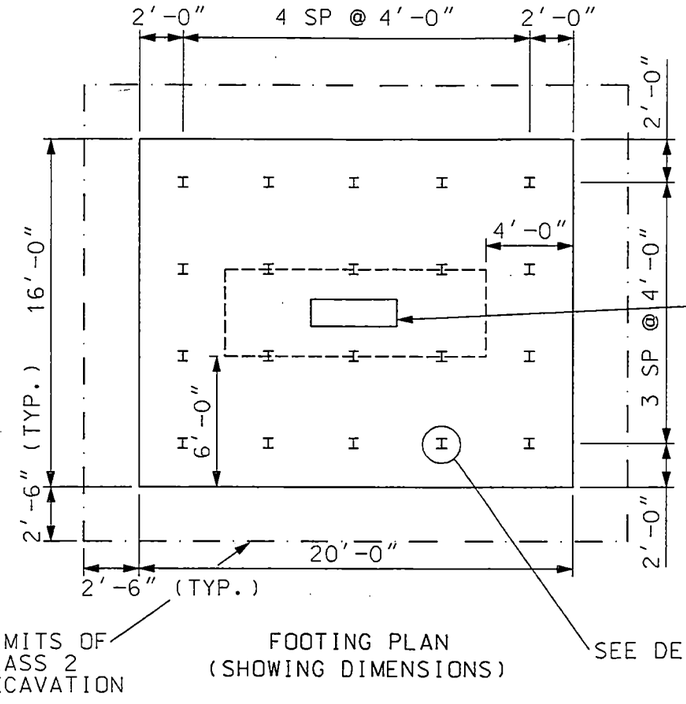
interstate engineering, inc.
ENGINEERING SURVEYING PLANNING



FOOTING PLAN
(SHOWING TOP REINFORCING)

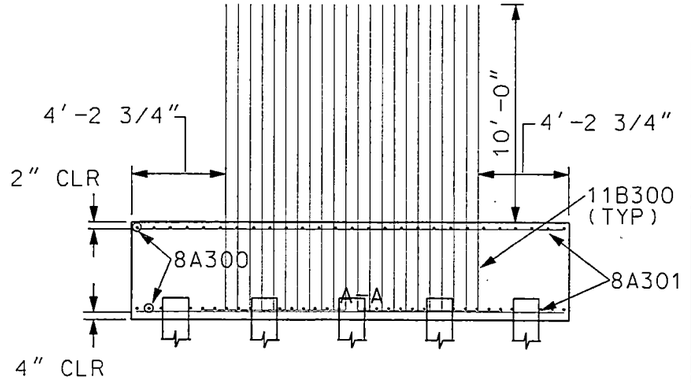
VOID

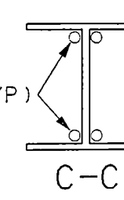


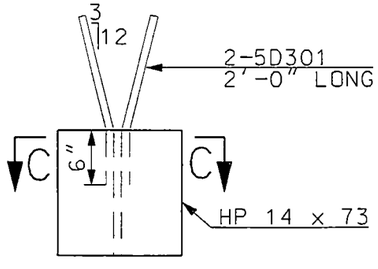


LIMITS OF CLASS 2 EXCAVATION

FOOTING PLAN
(SHOWING DIMENSIONS)

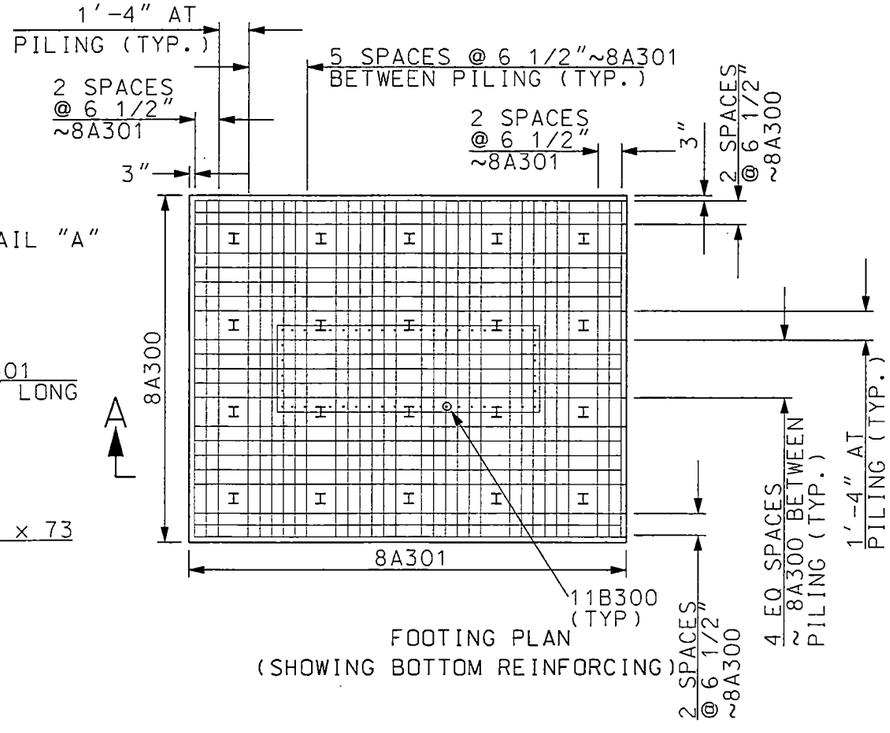






DETAIL A

THE COST OF WELDING THE D-BARS TO THE PILE SHALL BE INCIDENTAL TO THE BID PRICE FOR "STEEL PILING HP 14 x 73".



FOOTING PLAN
(SHOWING BOTTOM REINFORCING)

QUANTITIES

SEE DWG 52-915.716-15

PIPESTEM CREEK
HWY 52 BYPASS
JAMESTOWN

PIER 3 FOOTING DETAILS
(SHOWING REINFORCING)

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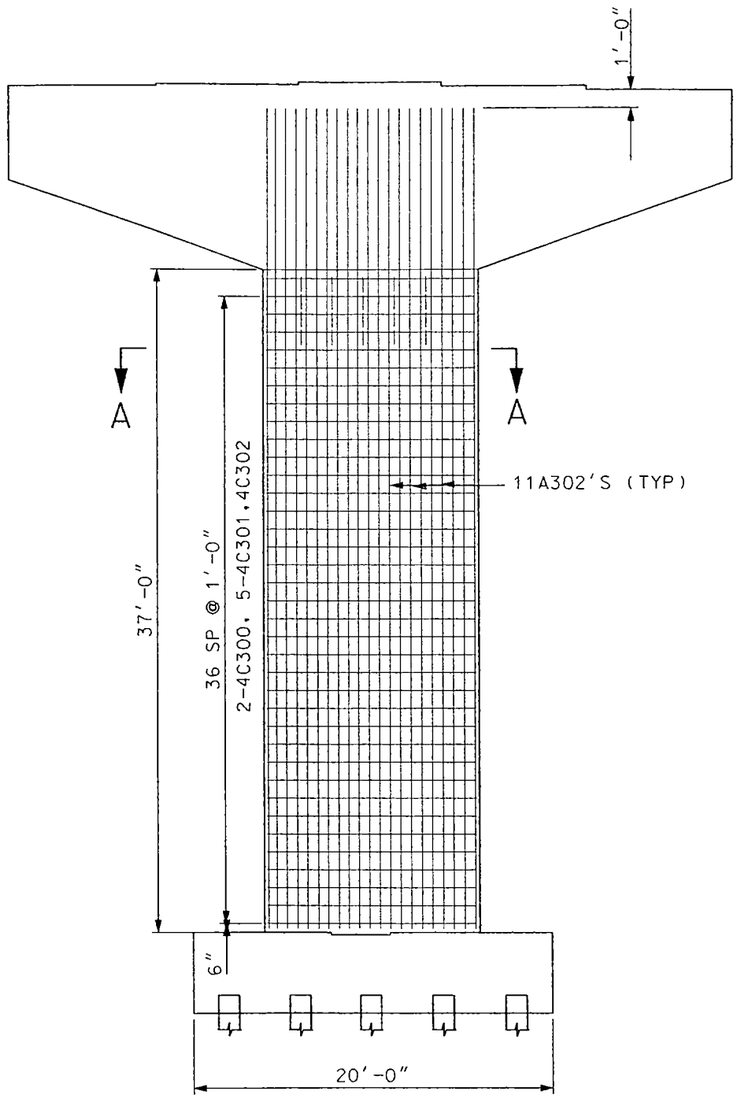
SITE 2

52-915.716-17

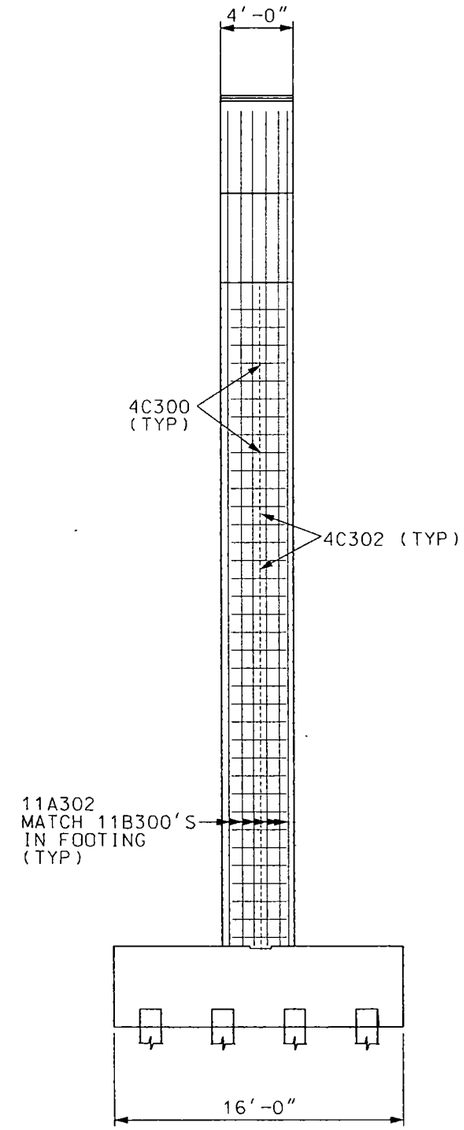
STATE	PROJECT NUMBER	SHEET NO.
ND	HPP-2-052(019)915	96

REVISED 8-5-02

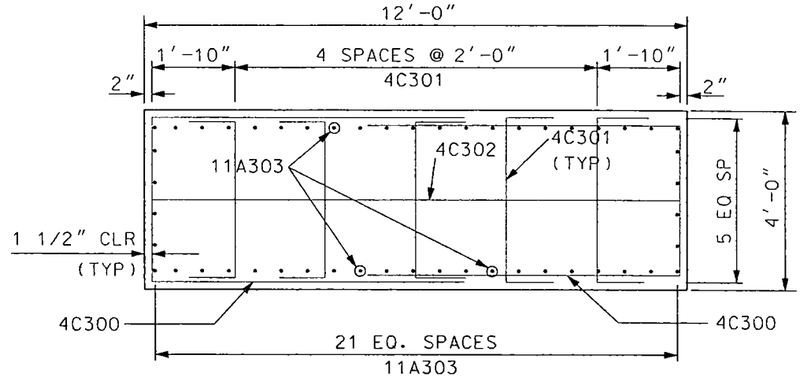
interstate engineering, inc.
ENGINEERING SURVEYING PLANNING



PIER COLUMN ELEVATION



SIDE ELEVATION



A-A

QUANTITIES
SEE DWG 52-915.716-19

PIPESTEM CREEK
HWY 52 BYPASS
JAMESTOWN

PIER 3 DETAILS
(SHOWING REINFORCING)

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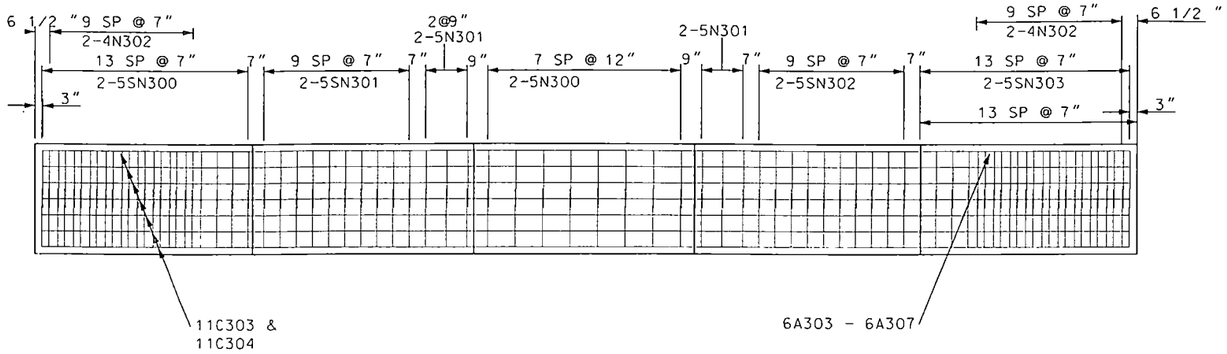
SITE 2

52-915.716-18

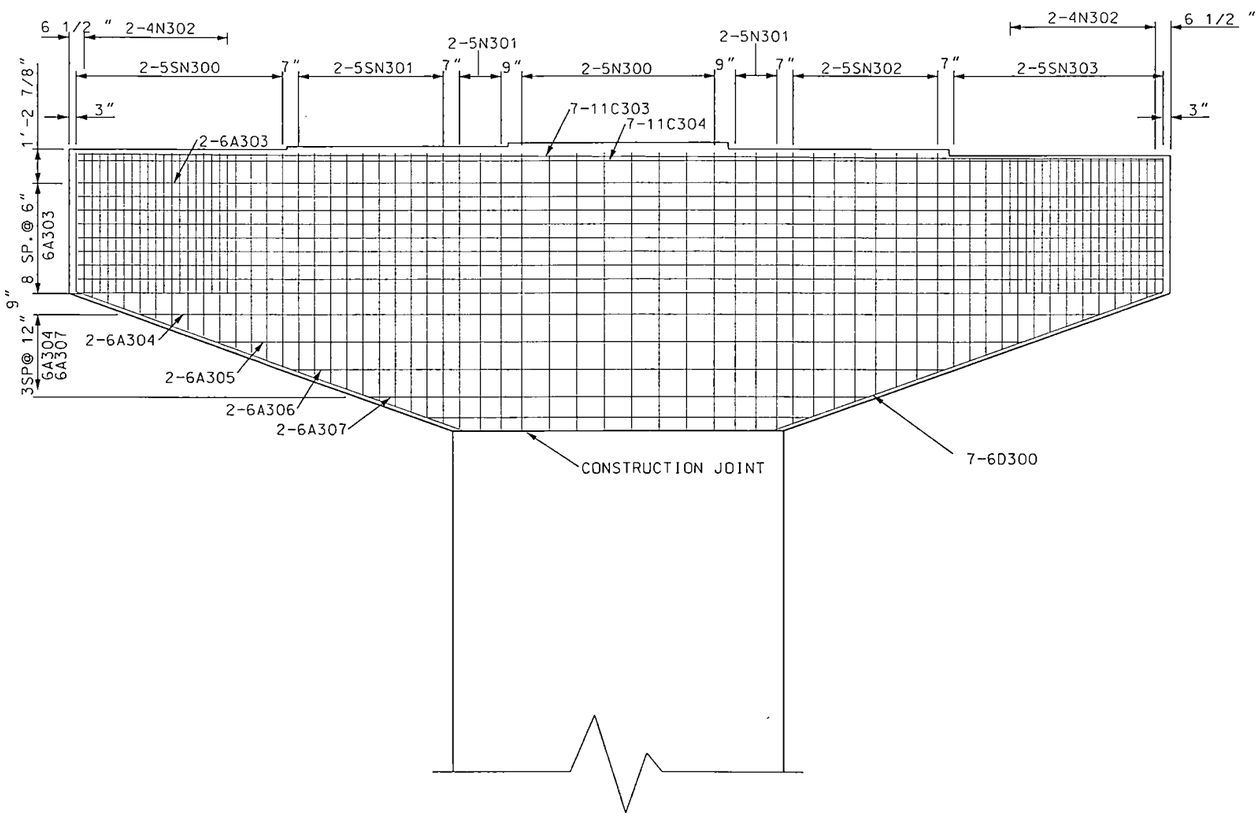
REVISED 8-5-02

STATE	PROJECT NUMBER	SHEET NO.
ND	HPP-2-052(019)915	97

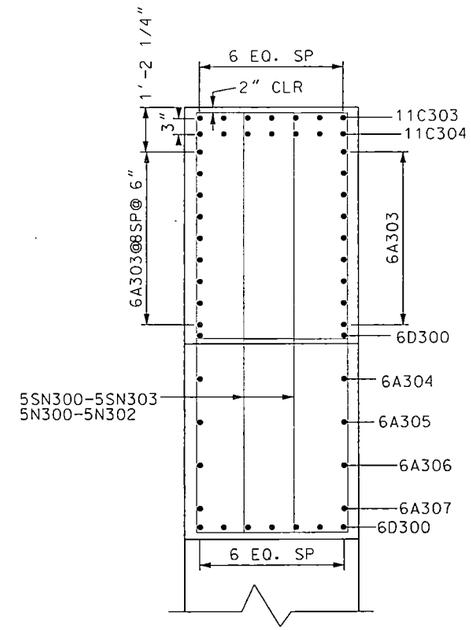
interstate engineering, inc.
ENGINEERING SURVEYING PLANNING



PLAN



ELEVATION



END VIEW

QUANTITIES	
CLASS AE-3 CONCRETE	160.6 CY
REINFORCING STEEL	32,322 LBS

PIPESTEM CREEK
HWY 52 BYPASS
JAMESTOWN

PIER 3 CAP DETAILS
(SHOWING REINFORCING)

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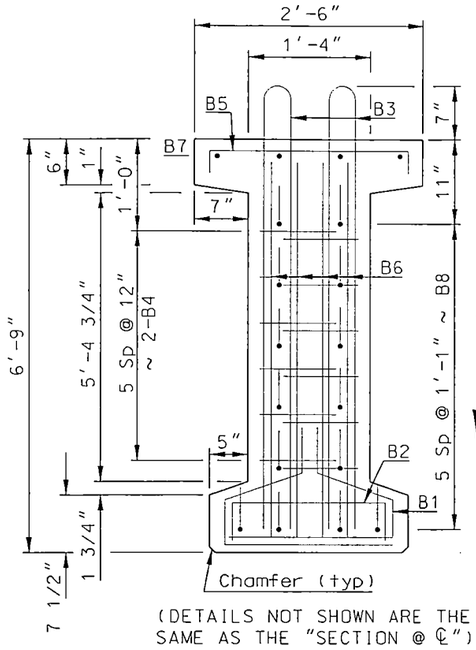
SITE 2 52-915.716-19

interstate engineering, inc.
ENGINEERING SURVEYING PLANNING

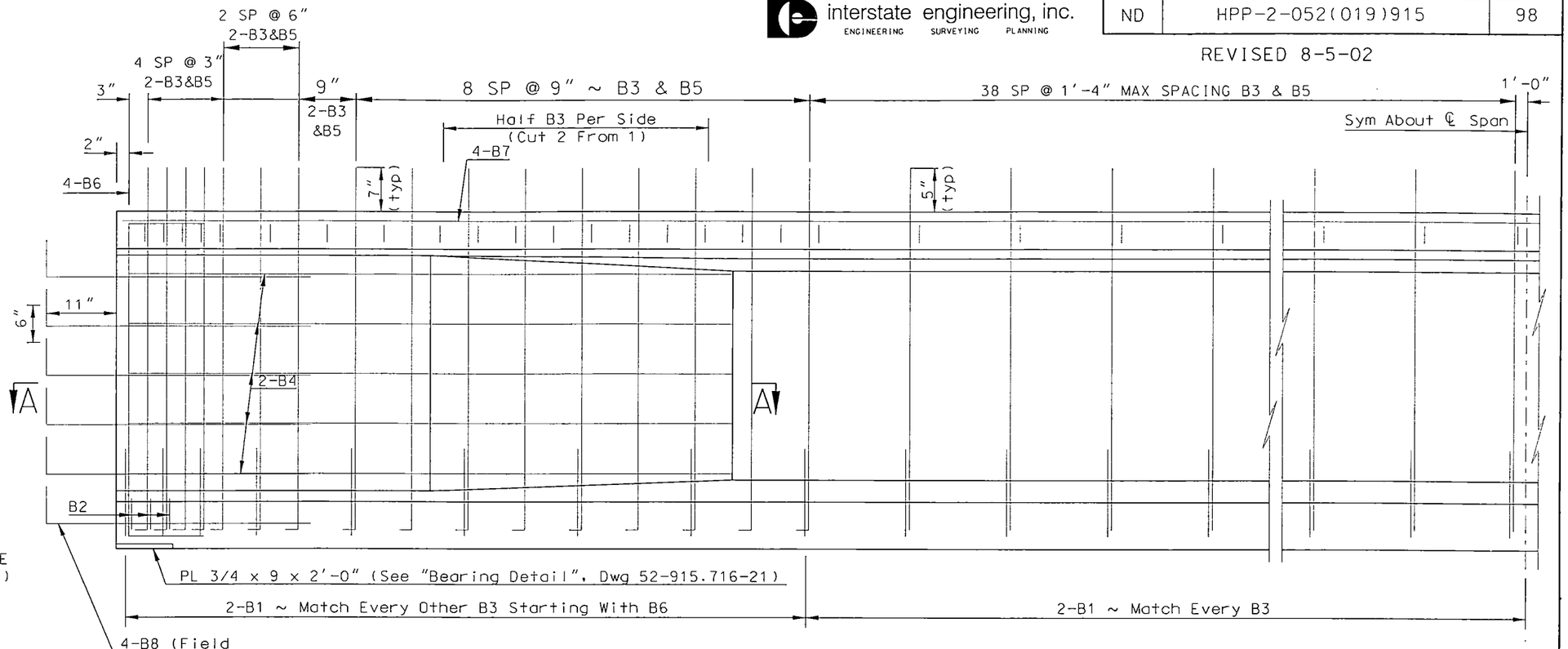
STATE	PROJECT NUMBER	SHEET NO.
ND	HPP-2-052(019)915	98

REVISED 8-5-02

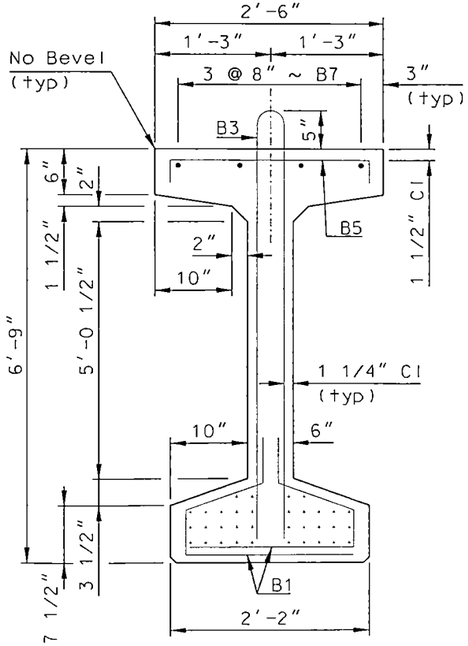


(DETAILS NOT SHOWN ARE THE SAME AS THE "SECTION @ ℄")

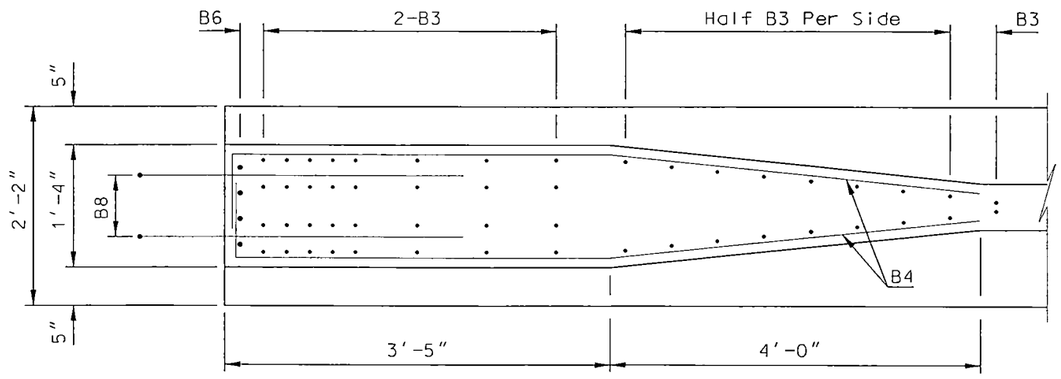
END VIEW



PART BEAM ELEVATION



SECTION @ ℄



A-A

PRESTRESSING DATA			
C.G.	FINAL FORCE	DETENSION STRENGTH	ACCEPTANCE STRENGTH
3.50	1,033.4 k	4800 psi (Min)	6000 psi (Min)
4.25	1,055.9 k		
5.00	1,077.6 k		

BAR LIST - ONE BEAM				
MARK	SIZE	NO.	LENGTH	SHAPE
B1	4	188	3'-8"	Bent
B2	5	6	2'-6"	Bent
B3	4	126	14'-10"	Bent
B4	4	24	8'-1"	Bent
B5	3	110	2'-9"	Bent
B6	5	8	7'-5"	Bent
B7	5	12	43'-0"	Str
B8	5	28	4'-0"	Str

QUANTITIES	
BEAM LENGTH	123'-2" LF

PIPESTEM CREEK
HWY 52 BYPASS
JAMESTOWN

PRE-TENSIONED 81" 123'-2"
PRESTRESSED GIRDER DETAILS

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SITE 2

52-915.716-20

interstate engineering, inc.
ENGINEERING SURVEYING PLANNING

STATE	PROJECT NUMBER	SHEET NO.
ND	HPP-2-052(019)915	99

REVISED 8-5-02

NOTES:

Design and Shop Drawings: At least 14 days prior to the forming and pouring of any girders, the contractor shall submit checked design figures and shop drawings for the approval of the Construction Engineer of the NDDOT. The design figures shall show the total initial prestress force taken from the contract drawings and the losses in prestress due to elastic shortening, shrinking or creeping of concrete and the relaxation of steel stress as determined by the contractor for his method of stressing.

Shop drawings shall show strand layout, pull down locations, tensioning forces, elongation and any proposed changes in reinforcing steel.

The final prestress force (remaining after all losses have been accounted for) and its corresponding center of gravity, shall be selected from those on a curve determined by the three values shown.

The girders shall be poured in all steel forms.

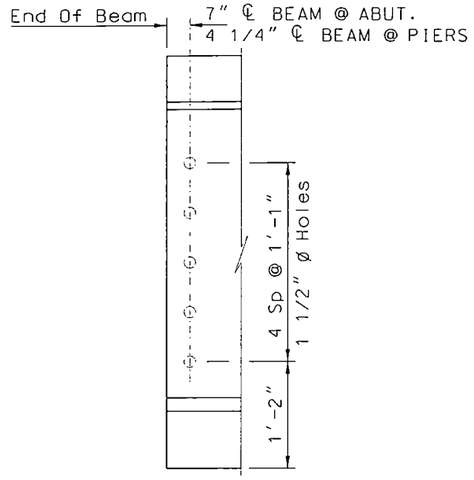
Holes and inserts to accommodate the diaphragm bars shall be provided in the girders at locations as shown.

All reinforcing steel shall be grade 60 and shall have a clearance of 1 1/4" unless otherwise noted.

Minor changes to the shape of the girder and to reinforcing steel may be made to accommodate the forms of various contractors and their construction methods with the approval of the NDDOT Construction Engineer.

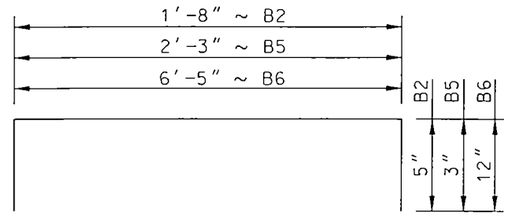
The tops of the beams shall be rough floated and broomed transversely for bond.

Provide handling hooks or devices as required by the contractor. Hooks or devices provided will be subject to approval of the Engineer and shall be installed within 4'-0" of the end of beam.

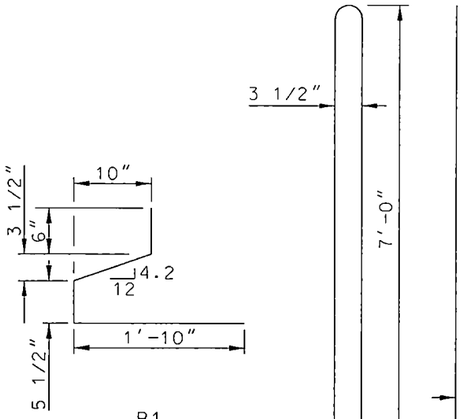


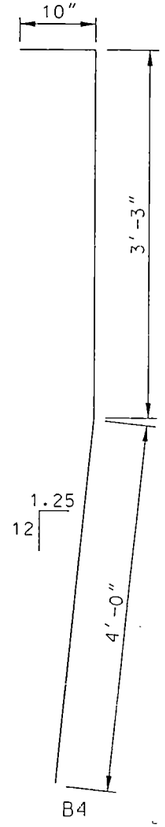
(Holes shall be for all beams at the Abutments & for the interior beams only at the Piers. Inserts shall be used for the exterior beams at the Piers.)
SKEW ANGLES 15°

ELEVATION
END OF BEAM DETAIL

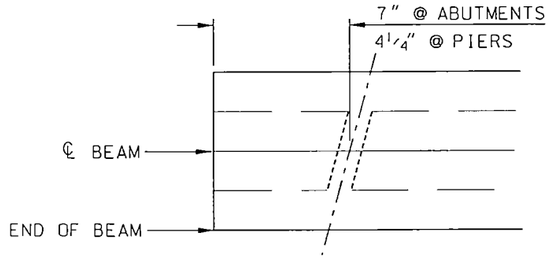


B2, B5 & B6

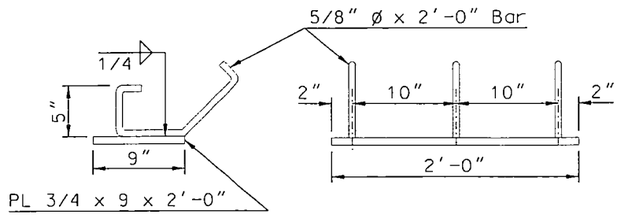




(Dimensions Shown Are Out To Out)
BENT BAR DETAILS

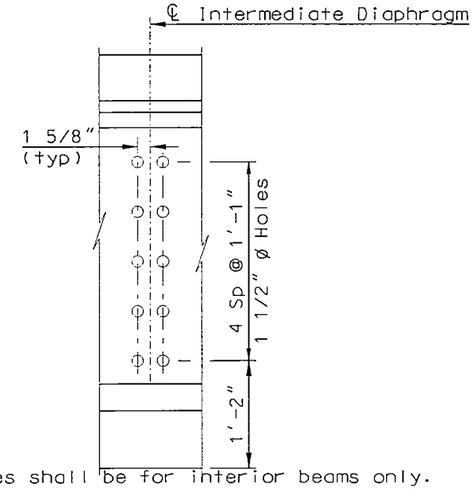


PLAN VIEW END OF BEAM DETAIL



(Bearing plate to be Structural Steel M-183, hot dipped galvanized, and included in the bid price for the girder.)

BEARING DETAIL



(Holes shall be for interior beams only. Inserts shall be used for the exterior beams. See Dwg 52-915.716-XX for locations.)
SKEW ANGLE 15°

ELEVATION
INTERMEDIATE DIAPHRAGM DETAIL

BEAM SECTION DATA
WT = 920 LBS/FT + 3220 LBS FOR END BLOCKS
CROSS SEC. AREA AT ℄ OF SPAN = 837 IN^2
C.G. (FROM BOTTOM) = 40.04 IN
I = 735.614 IN^4
S_B = 18.371 IN^3
END AREA = 1471 IN^2

PIPESTEM CREEK
HWY 52 BYPASS
JAMESTOWN

PRESTRESSED GIRDER
DETAILS & NOTES

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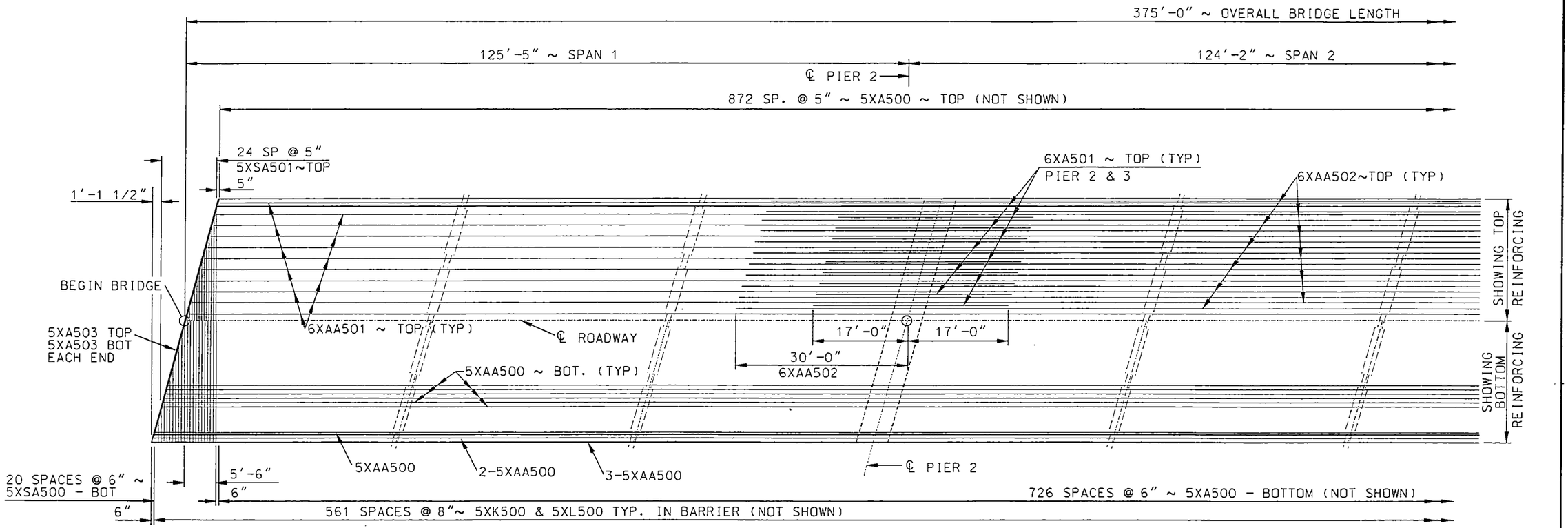
SITE 2

52-915.716-21

REVISED 5-29-02

STATE	PROJECT NUMBER	SHEET NO.
ND	HPP-2-052(019)915	100

interstate engineering, inc.
ENGINEERING SURVEYING PLANNING



QUANTITIES
SEE DWG 52-915.716-27

PIPESTEM CREEK
HWY 52 BYPASS
JAMESTOWN

HALF SLAB LAYOUT

SITE 2 52-915.716-22

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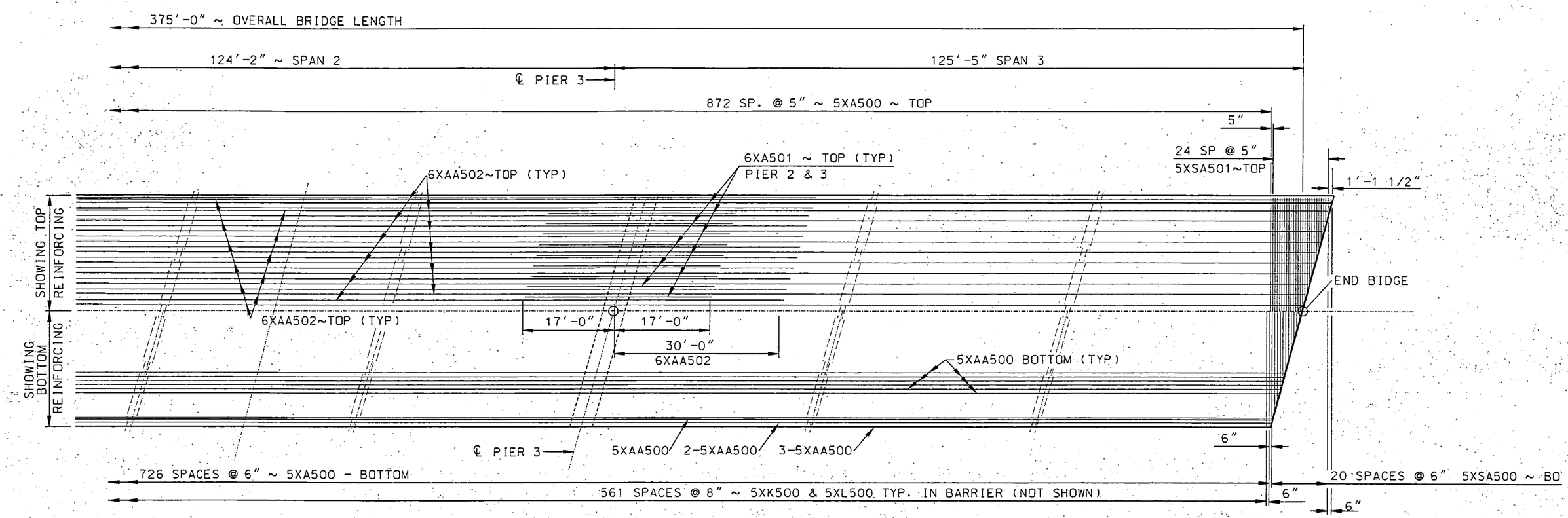
REVISED 5-29-02

STATE	PROJECT NUMBER	SHEET NO.
ND	HPP-2-052(019)915	101

interstate engineering, inc.
ENGINEERING SURVEYING PLANNING



QUANTITES
SEE DWG 52-915.716-27

PIPESTEM CREEK
HWY 52 BYPASS
JAMESTOWN

HALF SLAB LAYOUT
(SHOWING DIMENSIONS)

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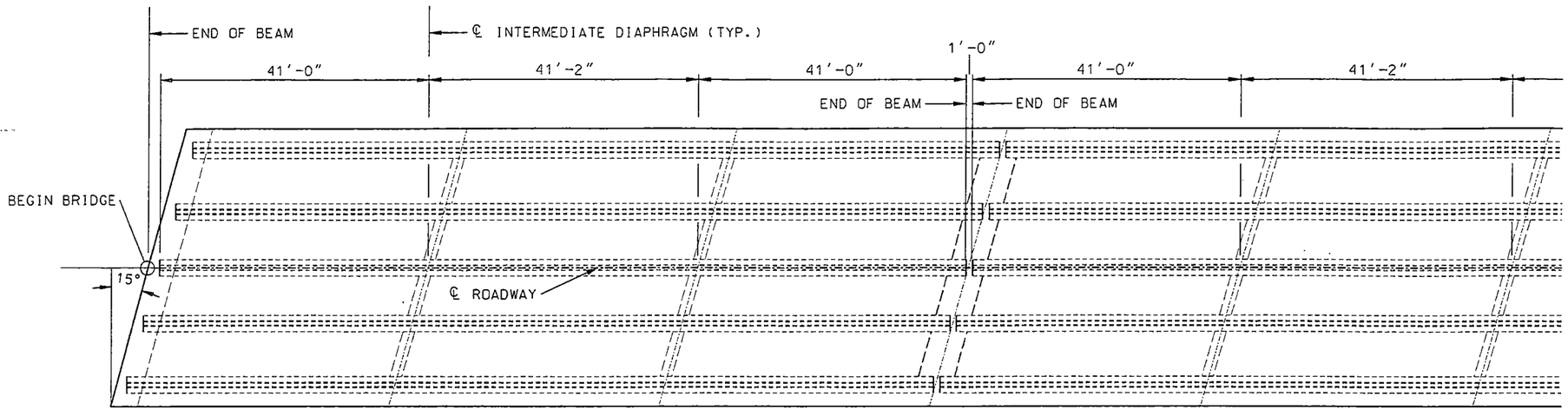
SITE 2

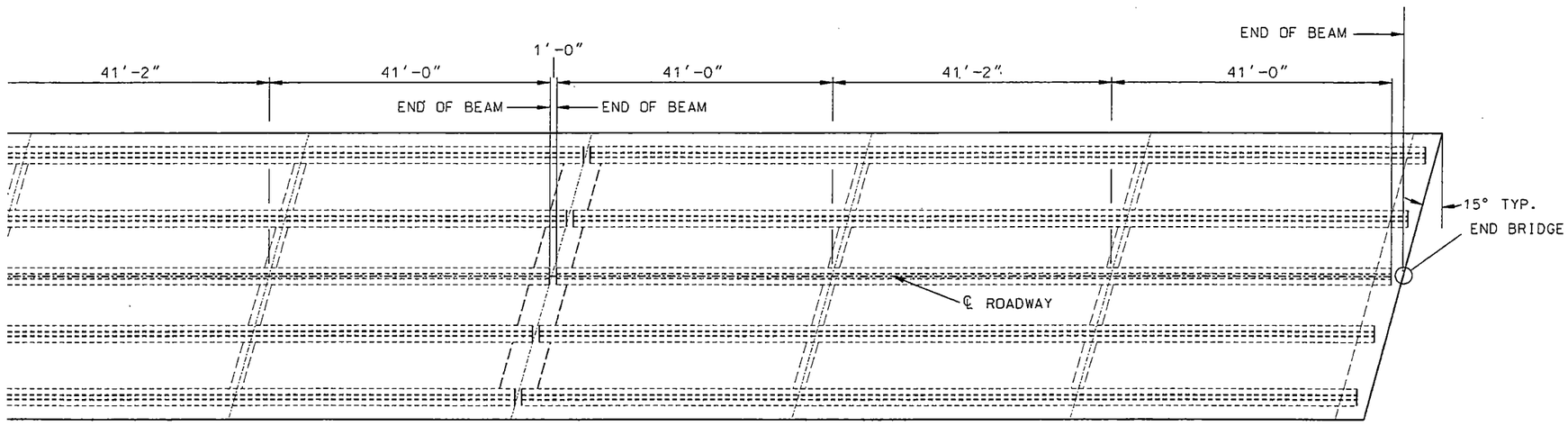
52-915.716-23

STATE	PROJECT NUMBER	SHEET NO.
ND	HPP-2-052(019)915	102

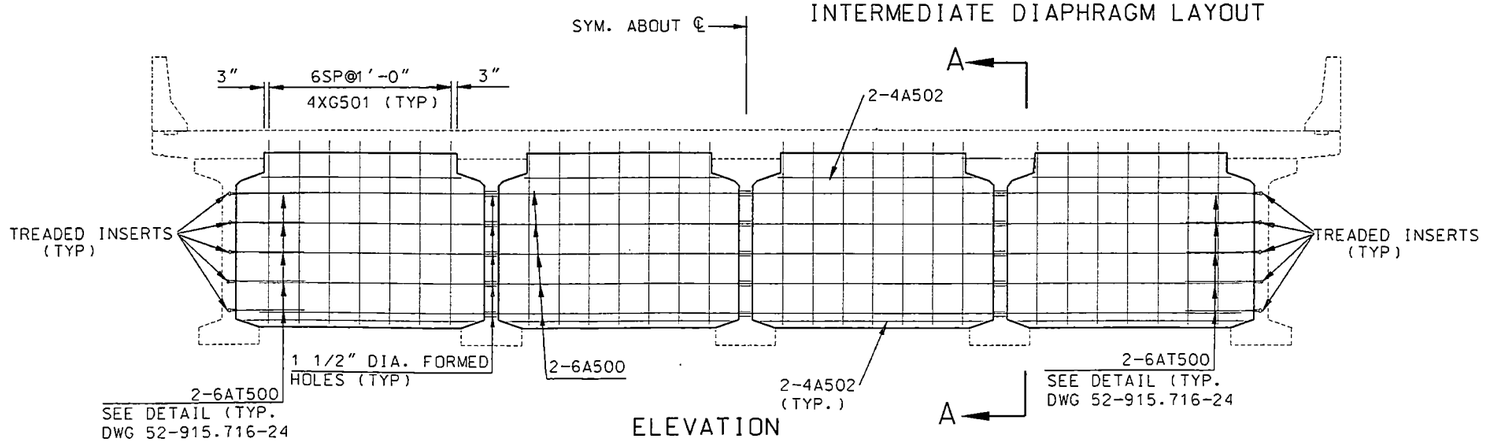
interstate engineering, inc.
ENGINEERING SURVEYING PLANNING



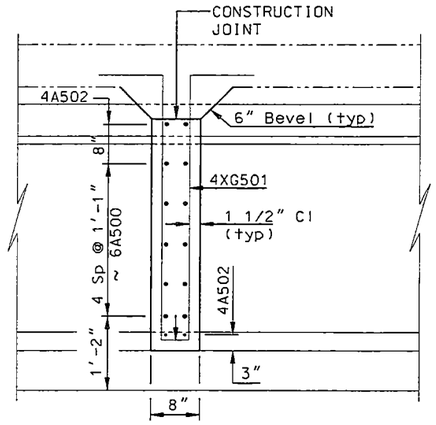
INTERMEDIATE DIAPHRAGM LAYOUT



INTERMEDIATE DIAPHRAGM LAYOUT



ELEVATION



A-A

QUANTITIES
SEE DWG 52-915.716-27

PIPESTEM CREEK
HWY 52 BYPASS
JAMESTOWN

INTERMEDIATE DIAPHRAGM

SITE 2 52-915.716-24

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HPP

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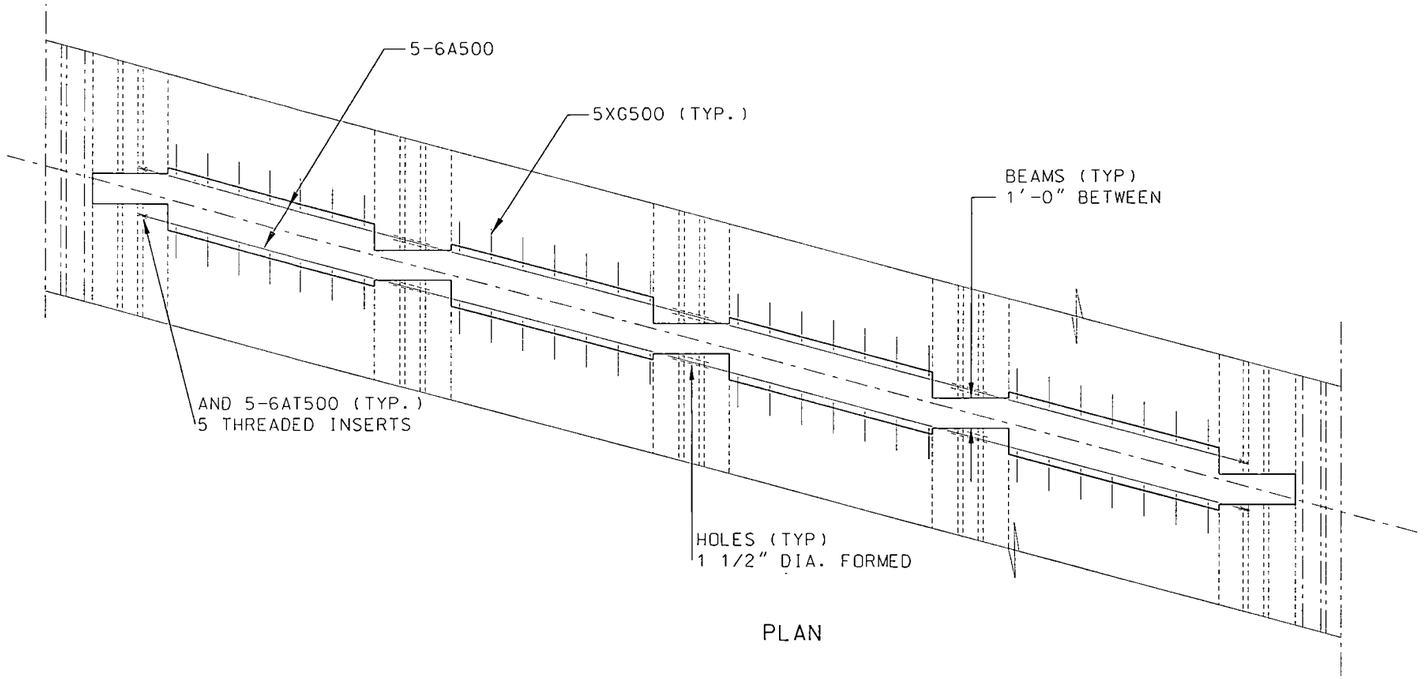
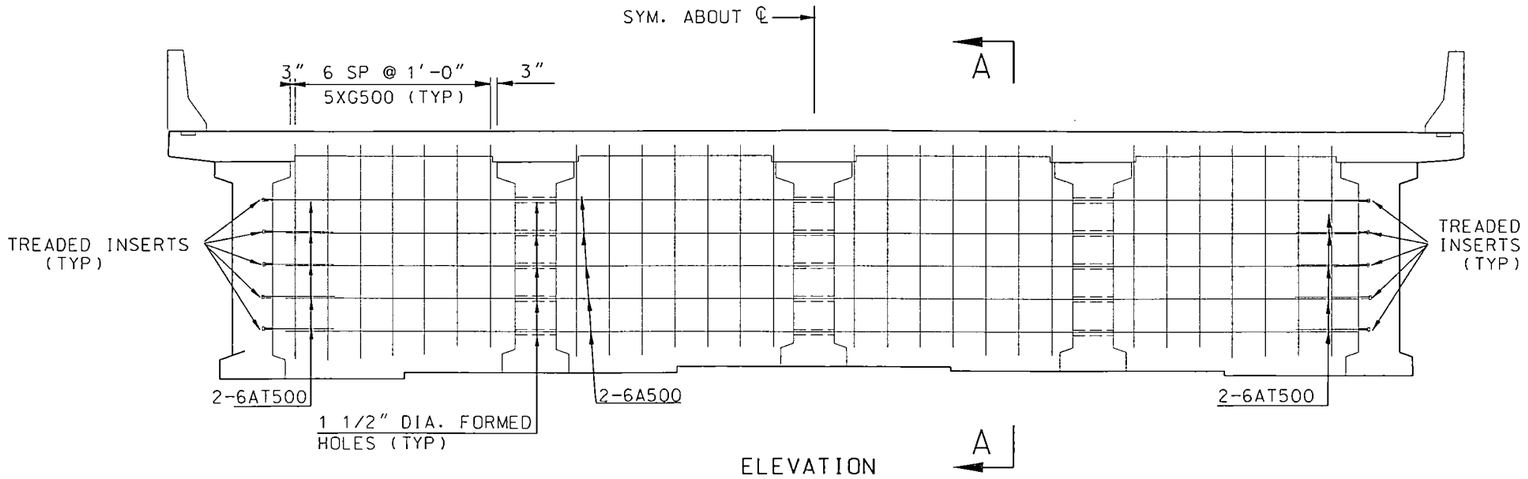
STATE	PROJECT NUMBER	SHEET NO.
ND	HPP-2-052(019)915	103

REVISED 8-5-02

interstate engineering, inc.
ENGINEERING SURVEYING PLANNING



PLAN



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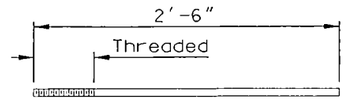
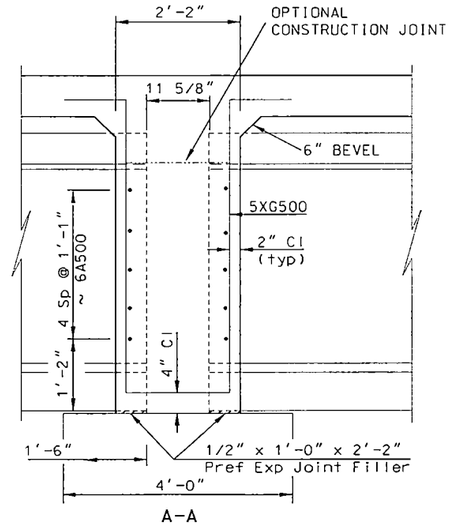


(No. 6 Reinforcing Steel ~ Included in the Prestressed I-Beam bid item.)

6AT500 DETAIL



A-A

QUANTITIES
SEE DWG 52-915.716-27

PIPESTEM CREEK
HWY 52 BYPASS
JAMESTOWN

PIER DIAPHRAGM DETAILS

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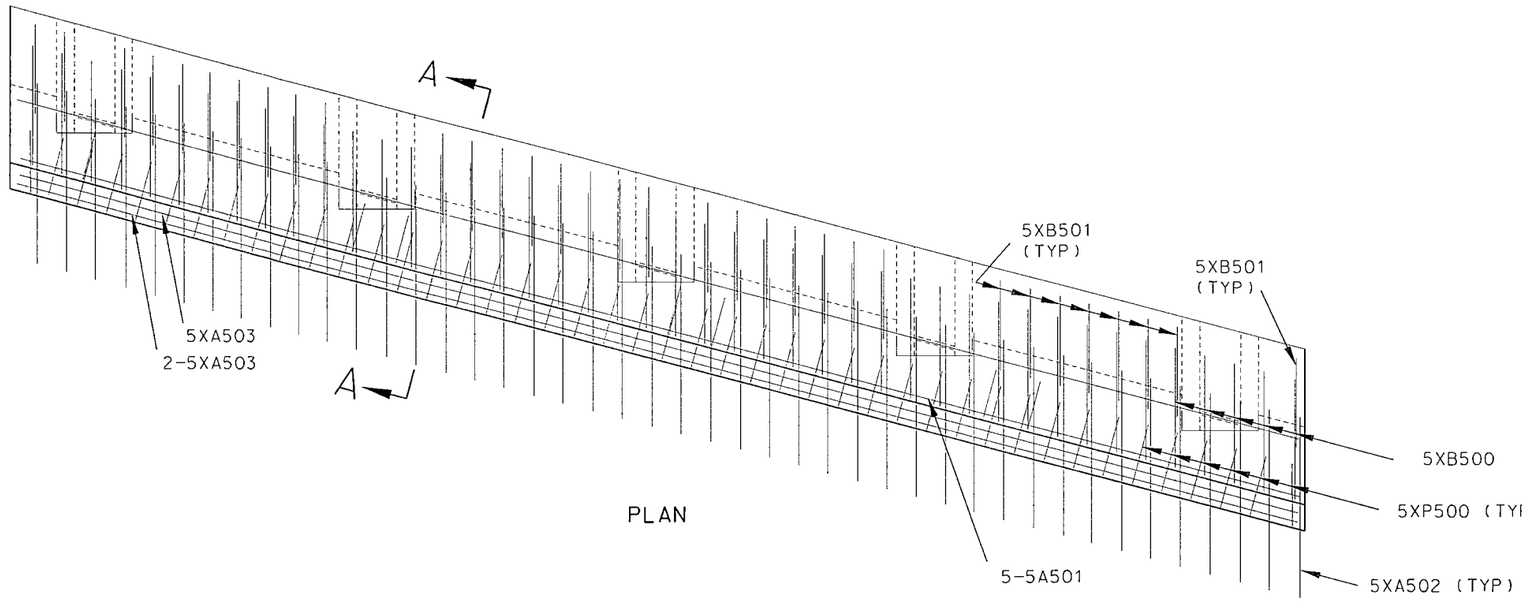
SITE 2

52-915.716-25

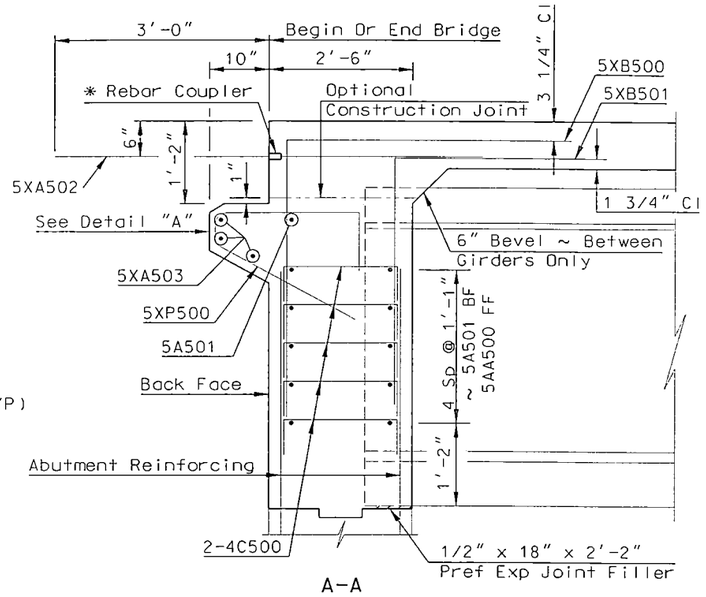
STATE	PROJECT NUMBER	SHEET NO.
ND	HPP-2-052(019)915	104

REVISED 8-5-02

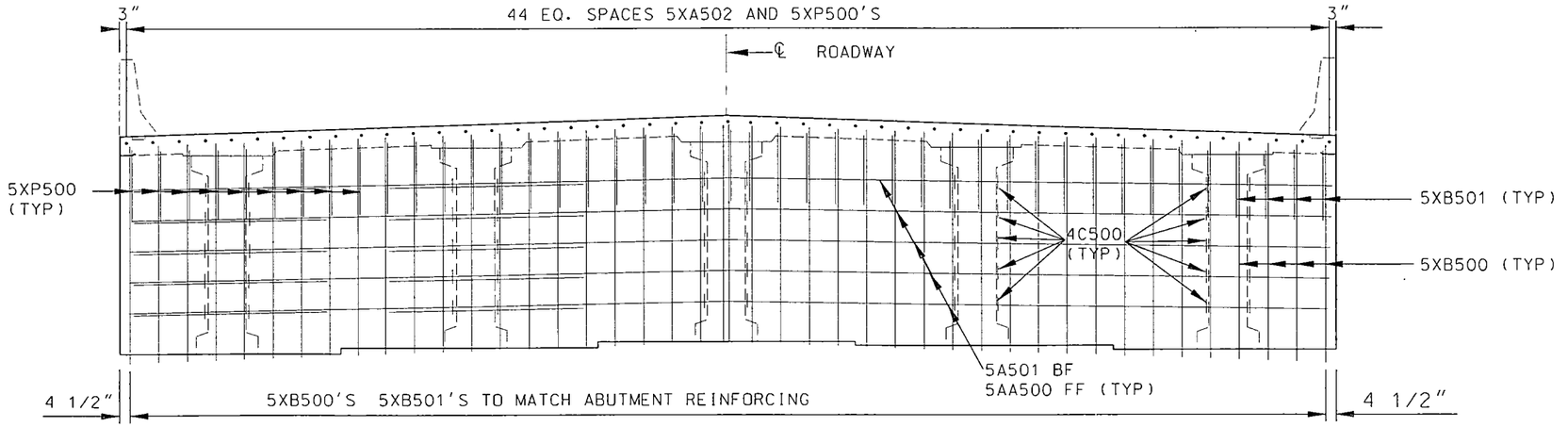
interstate engineering, inc.
ENGINEERING SURVEYING PLANNING



PLAN



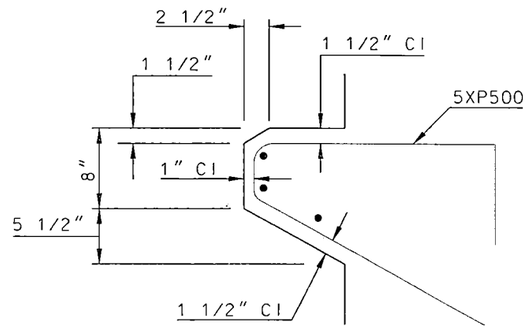
A-A



ELEVATION

* REBAR COUPLER IS OPTIONAL IN LIEW OF CONTINUOUS 5XA502 ~ 6'-0"

F.F. ~ FRONT FACE
B.F. ~ BACK FACE



DETAIL "A"

QUANTITES
SEE DWG 52-915.716-27

PIPESTEM CREEK
HWY 52 BYPASS
JAMESTOWN

END BEAM DETAILS

10:18:11 AM
8/6/2002

g:\dgn\J980103\PIPESTEM\DIAPHRAGM\ENDBEAM-SHT.dgn

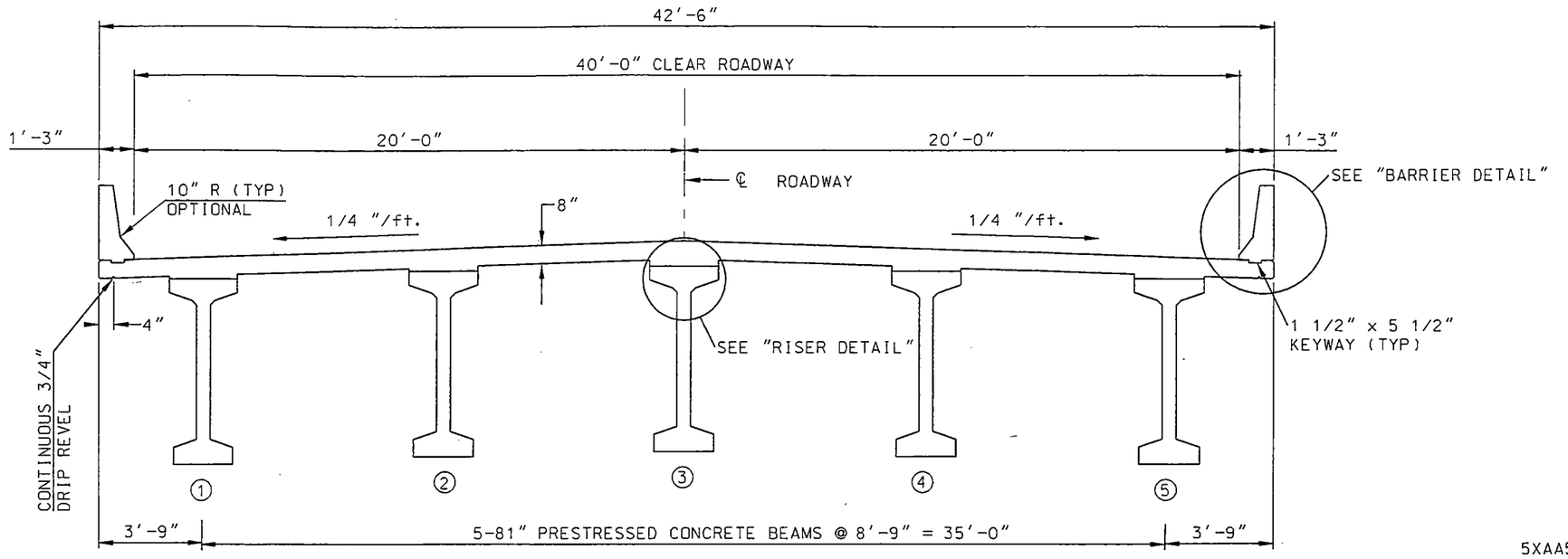
SITE 2

52-915.716-26

REVISED 5-29-02

STATE	PROJECT NUMBER	SHEET NO.
ND	HPP-2-052(019)915	105

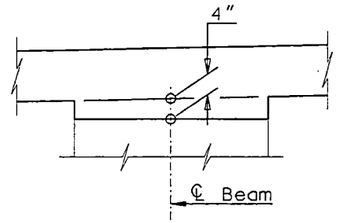
interstate engineering, inc.
ENGINEERING SURVEYING PLANNING



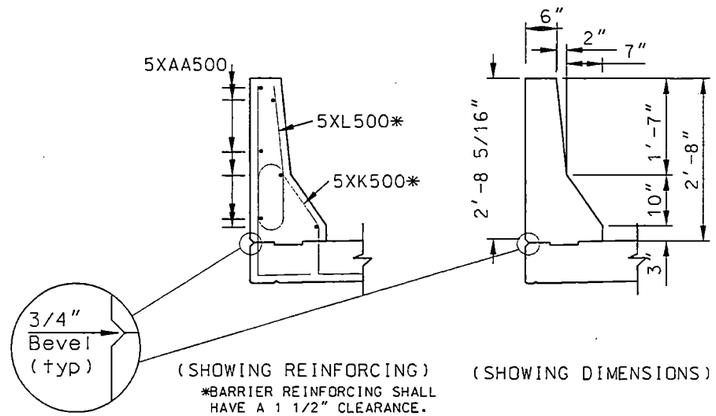
(SHOWING DIMENSIONS)

SLAB SECTION

The 4" dimension shown is located at the supports. The anticipated midspan riser is 1.0" The riser shall be adjusted to maintain the 8" slab thickness.



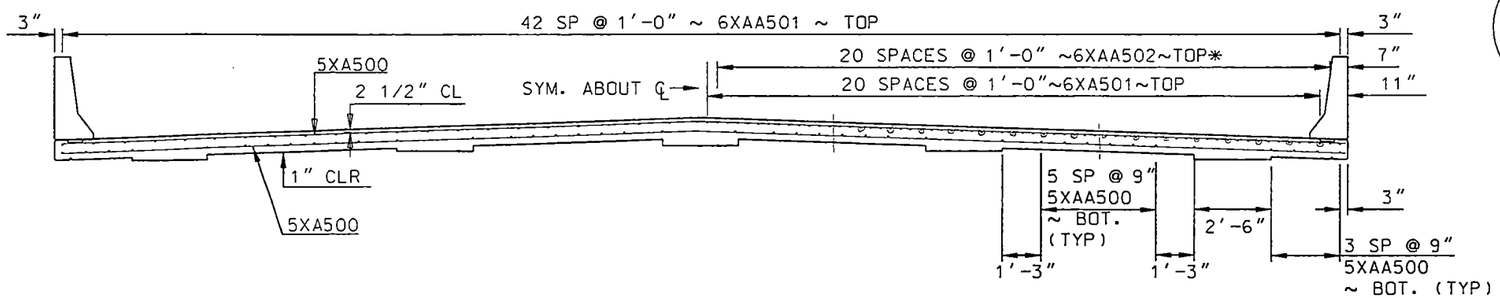
RISER DETAIL



(SHOWING REINFORCING) (SHOWING DIMENSIONS)

*BARRIER REINFORCING SHALL HAVE A 1 1/2" CLEARANCE.

BARRIER DETAILS



(SHOWING REINFORCING BETWEEN ABUTMENTS & PIERS) (SHOWING REINFORCING OVER PIERS & SPAN 2)

SLAB SECTION
(SHOWING REINFORCING)

* THE 6XAA502'S ARE CONTINUOUS OVER THE ENTIRE SPAN 2

QUANTITIES	
CLASS AAE-3 CONCRETE	578.6 CY
REINFORCING STEEL	5857 LBS
REINFORCING STEEL (EPOXY)	150.168 LBS

PIPESTEM CREEK
HWY 52 BYPASS
JAMESTOWN

SLAB SECTION

03:10:57 PM
05/29/2002

q:\dgn\J980102\PIPESTEM\DECK\SLABSEC-SHT.dgn

SITE 2

52-915.716-27

REVISED 8-5-02

STATE	PROJECT NUMBER	SHEET NO.
ND	HPP-2-052(019)915	106

interstate engineering, inc.
ENGINEERING SURVEYING PLANNING

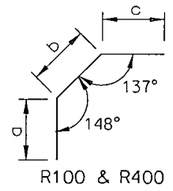
BILL OF REINFORCING STEEL. GRADE 60

LETTER PREFIX OF BAR MARK DENOTES SHAPE ~ SEE BAR DETAILS

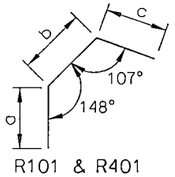
LOCATION	SIZE	MARK	NO. EACH / SET	NOMINAL LENGTH	DETAILING DIMENSIONS a	b	c	d	e	f	g	h	k
ABUTMENT 1	5	A100	12	47′-11″		47′-11″							
	5	C100	30	25′-6″		11′-8″	2′-2″	11′-8″					
	5	C101	2	18′-7″		4′-9″	2′-2″	11′-8″					
	5	C102	6	18′-10″		5′-0″	2′-2″	11′-8″					
	5	C103	3	19′-0″		5′-2″	2′-2″	11′-8″					
	5	C104	3	18′-9″		4′-11″	2′-2″	11′-8″					
	5	C105	2	27′-2″		12′-6″	2′-2″	12′-6″					
	5	C106	2	27′-6″		12′-8″	2′-2″	12′-8″					
	5	C107	13	26′-8″		12′-6″	1′-8″	12′-6″					
	5	C108	12	27′-0″		12′-8″	1′-8″	12′-8″					
	4	C109	20	4′-2″		1′-0″	2′-2″	1′-0″					
	4	C110	54	3′-2″		0′-6″	2′-2″	0′-6″					
	5	D100	14	19′-2″		4′-6″	14′-8″					12	3.2
	5	D101	14	15′-8″		2′-9″	12′-11″					12	3.2
	5	D102	14	19′-1″		4′-6″	14′-7″					12	-3.2
	5	D103	14	14′-8″		2′-9″	11′-11″					12	-3.2
	7	D104	10	14′-0″		7′-0″	7′-0″					12	3.2
	7	D105	10	14′-0″		7′-0″	7′-0″					12	-3.2
	5	R100	6	10′-7″	1′-0″	8′-7″	1′-0″						
	5	R101	6	9′-2″	1′-0″	7′-2″	1′-0″						
ABUTMENT 4	5	A400	12	47′-11″		47′-11″							
	5	C400	30	25′-6″		11′-8″	2′-2″	11′-8″					
	5	C401	5	18′-9″		4′-11″	2′-2″	11′-8″					
	5	C402	3	18′-10″		5′-0″	2′-2″	11′-8″					
	5	C403	3	19′-0″		5′-2″	2′-2″	11′-8″					
	5	C404	3	18′-6″		4′-8″	2′-2″	11′-8″					
	5	C405	2	27′-8″		12′-9″	2′-2″	12′-9″					
	5	C406	2	27′-0″		12′-5″	2′-2″	12′-5″					
	5	C407	13	27′-2″		12′-9″	1′-8″	12′-9″					
	5	C408	12	26′-3″		12′-5″	1′-8″	12′-2″					
	4	C409	20	4′-2″		1′-0″	2′-2″	1′-0″					
	4	C410	54	3′-2″		0′-6″	2′-2″	0′-6″					
	5	D400	14	19′-2″		4′-6″	14′-8″					12	3.2
	5	D401	14	15′-8″		2′-9″	12′-11″					12	3.2
	5	D402	14	19′-1″		4′-6″	14′-7″					12	-3.2
	5	D403	14	14′-8″		2′-9″	11′-11″					12	-3.2
	7	D404	10	14′-0″		7′-0″	7′-0″					12	3.2
	7	D405	10	14′-0″		7′-0″	7′-0″					12	-3.2
	5	R400	6	10′-7″	1′-0″	8′-7″	1′-0″					12	12
	5	R401	6	9′-2″	1′-0″	7′-2″	1′-0″					12	12

NOTES:

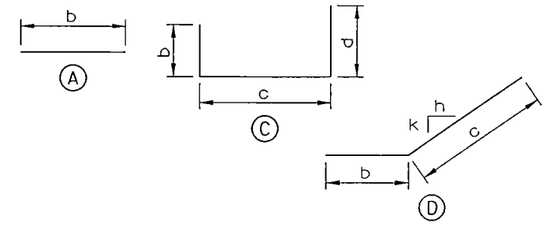
1. Fabrication and tolerances shall be in accordance with the CRSI Manual of Standard Practice.
2. All dimensions are out to out of bars.
3. Nominal length of each bent bar or cut bar is the sum total of the detailing dimensions for that bar, unless otherwise noted.



R100 & R400



R101 & R401



PIPESTEM CREEK
HWY 52 BYPASS
JAMESTOWN

REINFORCING BAR LIST & DETAILS
(SHOWING DIMENSIONS)

SITE 2

52-915.716-28

8:53:01 AM

8/6/2002

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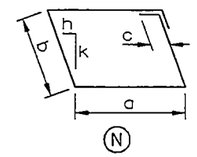
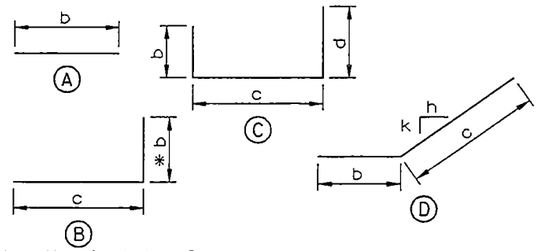
STATE	PROJECT NUMBER	SHEET NO.
ND	HPP-2-052(019)915	107

BILL OF REINFORCING STEEL. GRADE 60

LETTER PREFIX OF BAR MARK DENOTES SHAPE ~ SEE BAR DETAILS

LOCATION	SIZE	MARK	NO. EACH/SET	NOMINAL LENGTH	DETAILING DIMENSIONS a	b	c	d	e	f	g	h	k
PIER 2	8	A200	43	19'- 8"		19'- 8"							
	8	A201	57	15'- 8"		15'- 8"							
	11	A202	52	42'- 0"		42'- 0"							
	6	A203	18	39'- 8"		39'- 8"							
	6	A204	2	34'-11"		34'-11"							
	6	A205	2	29'- 4"		29'- 4"							
	6	A206	2	23'- 8"		23'- 8"							
	6	A207	2	18'- 1"		18'- 1"							
	11	B200	52	16'- 6"		2'-6"	14'-0"						
	4	C200	66	17'- 5"		6'-10"	3'-9"	6'-10"					
	4	C201	165	5'- 9"		1'-0"	3'-9"	1'-0"					
	4	C202	33	13'- 9"		1'-0"	11'-9"	1'-0"					
	11	C203	7	43'- 8"		2'-0"	39'-8"	2'-0"					
	11	C204	7	42'- 8"		2'-0"	38'-8"	2'-0"					
	6	D200	14	22'- 8"		7'-10"	14'-10"					12	4.29
	5	D201	80	2'- 0"		0'-6"	1'-6"					12	3
	5	N200	16	26'- 4"	2'- 7"	10'-1"	0'-6"					12	0
	5	N201	12	26'- 2"	2'- 7"	10'-0"	0'-6"					12	0
	4	N202	40	15'- 2"	2'- 7"	4'-8"	0'-4"					12	0
	5	SN200	2	263'- 8"	2'- 7"	5'-0"	0'-6"	7'-8"	13				
	5	SN201	2	240'-10"	2'- 7"	8'-0"	0'-6"	9'-11"	9				
	5	SN202	2	237'- 6"	2'- 7"	7'-10"	0'-6"	9'-9"	9				
	5	SN203	2	256'- 8"	2'- 7"	4'-9"	0'-6"	7'-5"	13				
PIER 3	8	A300	43	19'- 8"		19'- 8"							
	8	A301	57	15'- 8"		15'- 8"							
	11	A302	52	46'- 0"		46'- 0"							
	6	A303	18	39'- 8"		39'- 8"							
	6	A304	2	34'-11"		34'-11"							
	6	A305	2	29'- 4"		29'- 4"							
	6	A306	2	23'- 8"		23'- 8"							
	6	A307	2	18'- 1"		18'- 1"							
	11	B300	52	16'- 6"		2'-6"	14'-0"						
	4	C300	74	17'- 5"		6'-10"	3'-9"	6'-10"					
	4	C301	185	5'- 9"		1'-0"	3'-9"	1'-0"					
	4	C302	37	13'- 9"		1'-0"	11'-9"	1'-0"					
	11	C303	7	43'- 8"		2'-0"	39'-8"	2'-0"					
	11	C304	7	42'- 8"		2'-0"	38'-8"	2'-0"					
	6	D300	14	22'- 8"		7'-10"	14'-10"					12	4.29
	5	D301	80	2'- 0"		0'-6"	1'-6"					12	3
	5	N300	16	26'- 4"	2'- 7"	10'-1"	0'-6"					12	0
	5	N301	12	26'- 2"	2'- 7"	10'-0"	0'-6"					12	0
	4	N302	40	15'- 2"	2'- 7"	4'-8"	0'-4"					12	0





* b = Vertical leg for XB500's and XB501's

NOTES:

1. Fabrication and tolerances shall be in accordance with the CRSI Manual of Standard Practice.
2. All dimensions are out to out of bars.
3. Nominal length of each bent bar or cut bar is the sum total of the detailing dimensions for that bar, unless otherwise noted.

interstate engineering, inc.
ENGINEERING SURVEYING PLANNING

PIPESTEM CREEK
HWY 52 BYPASS
JAMESTOWN

REINFORCING BAR LIST & DETAILS
(SHOWING DIMENSIONS)

SITE 2 52-915.716-29

03:34:10 PM
05/16/2002

a: .dgn\J980102 PIPESTEM REBAR-SHT2.dgn

STATE	PROJECT NUMBER	SHEET NO.
ND	HPP-2-052(019)915	108

interstate engineering, inc.
ENGINEERING SURVEYING PLANNING

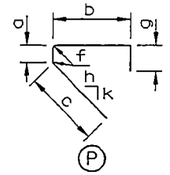
BILL OF REINFORCING STEEL. GRADE 60

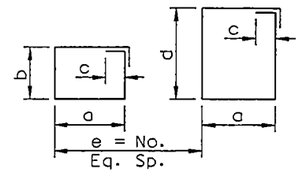
LETTER PREFIX OF BAR MARK DENOTES SHAPE ~ SEE BAR DETAILS

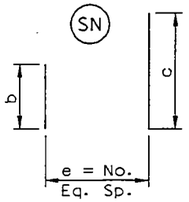
LOCATION		SIZE	MARK	NO. EACH/SET	NOMINAL LENGTH	DETAILING DIMENSIONS a	b	c	d	e	f	g	h	k
PIER 3	CONT.D	5	SN300	2	263'- 8"	2'- 7"	5'- 0"	0'- 6"	7'- 8"	13				
		5	SN301	2	240'- 10"	2'- 7"	8'- 0"	0'- 6"	9'- 11"	9				
		5	SN302	2	237'- 6"	2'- 7"	7'- 10"	0'- 6"	9'- 9"	9				
		5	SN303	2	256'- 8"	2'- 7"	4'- 9"	0'- 6"	7'- 5"	13				
SUPERSTRUCTURE	REGULAR	6	A500	80	34'- 0"	34'- 0"								
		5	A501	12	43'- 8"	43'- 8"								
		4	A502	96	5'-11"	5'-11"								
		4	C500	100	3'- 2"		0'- 6"	2'- 2"	0'- 6"					
		5	AA500	10	60'- 9"		6'- 9"	2'- 1"	6'- 9"	8		44'- 1"		
	EPOXY	5	XA500	1600	42'- 2"	42'- 2"								
		6	XA501	42	34'- 0"	34'- 0"								
		5	XA502	90	6'- 0"	6'- 0"								
		5	XA503	6	43'- 8"	43'- 8"								
		5	XB500	86	11'- 0"	5'- 0"	6'- 0"							
		5	XB501	58	9'- 0"	3'- 0"	6'- 0"							
		5	XG500	56	17'-10"	7'- 0"	1'-10"	7'- 0"	1'- 0"					
		4	XG501	168	15'- 3"	6'- 5"	0'- 5"	6'- 5"	1'- 0"					
		5	XK500	1124	5'- 0"	1'- 5"	0'- 8"	0'-11"	0'- 8"	1	2.50"	0 - 8 "	8.5	12
		5	XL500	1124	5'- 0"	0'- 3"	2'- 2"	0'- 8"	2'- 2"		2.50"		12	1.25
		5	XP500	90	5'- 6"	0'- 5"	2'- 1"	2'- 2"			1.25"	0 - 10 "	12	6.5
		5	XSA500	2	469'- 0"		3'- 8"		41'- 0"	20				
		5	XSA501	2	547'-11"		3'- 3"		40'- 7"	24				
		5	XAA500	52	386'- 8"		60'- 0"	2'- 0"	26'- 8"	6		374 - 8 "		
		6	XAA501	43	387'- 8"		60'- 0"	2'- 2"	27'- 8"	6		374 - 8 "		
		6	XAA502	42	192'-10"		40'- 0"	2'- 2"	32'- 10"	4		184 - 2 "		

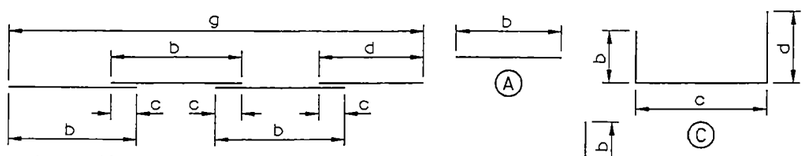
NOTES:

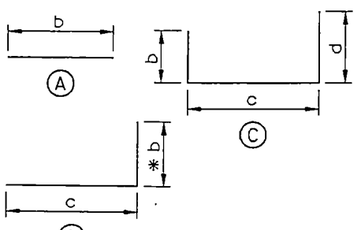
1. Fabrication and tolerances shall be in accordance with the CRSI Manual of Standard Practice.
2. All dimensions are out to out of bars.
3. Nominal length of each bent bar or cut bar is the sum total of the detailing dimensions for that bar, unless otherwise noted.
4. Adjacent "AA" bars shall be turned end for end so that the splice locations are staggered.
5. The "f" dimension indicates the radius.
6. An "X" preceding a bar designation indicates an epoxy coated bar.

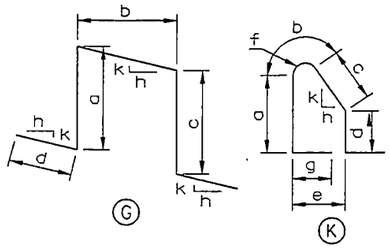


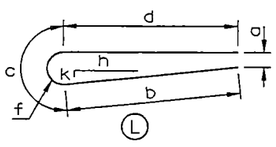












PIPESTEM CREEK
HWY 52 BYPASS
JAMESTOWN

REINFORCING BAR LIST & DETAILS
(SHOWING DIMENSIONS)

SITE 2

52-915.716-30

03:33:52 PM
05/16/2002

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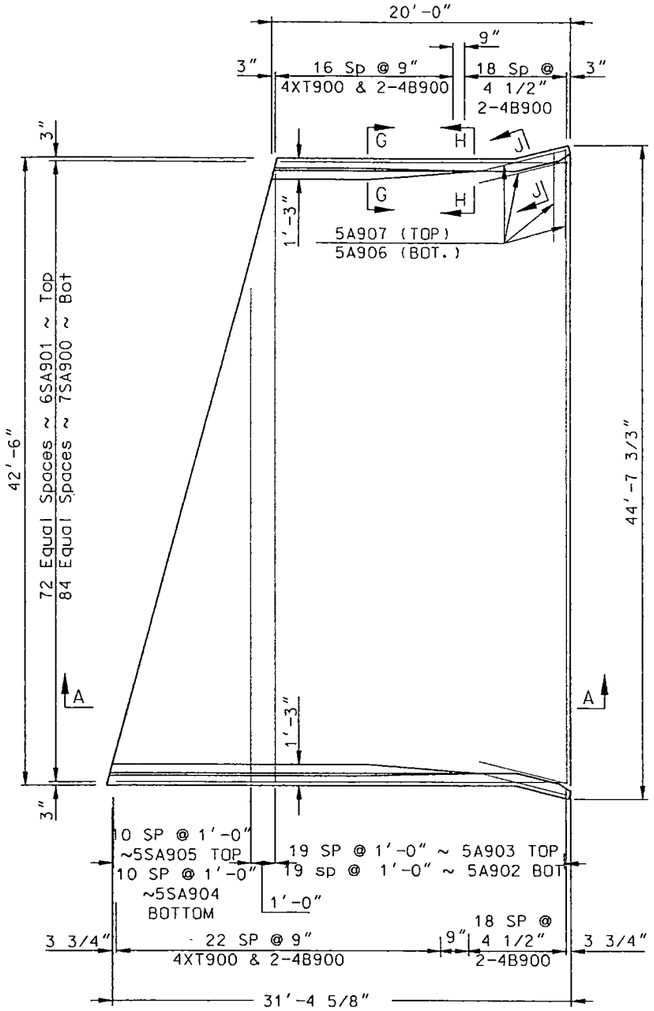
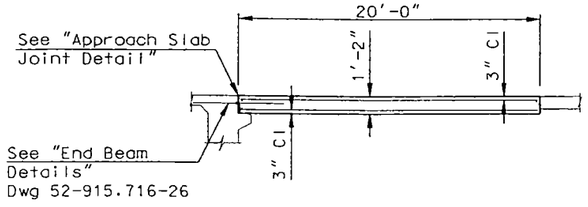
STATE	PROJECT NUMBER	SHEET NO.
ND	HPP-2-052(019)915	109

REVISED 8-5-02

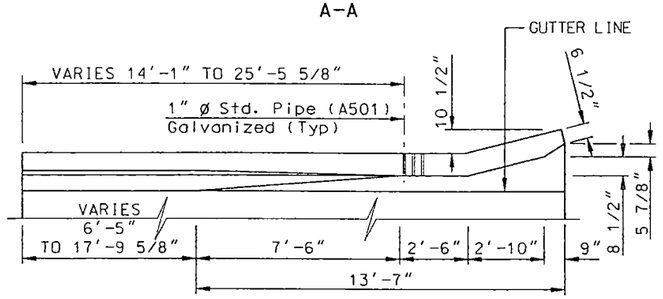
interstate engineering, inc.
ENGINEERING SURVEYING PLANNING



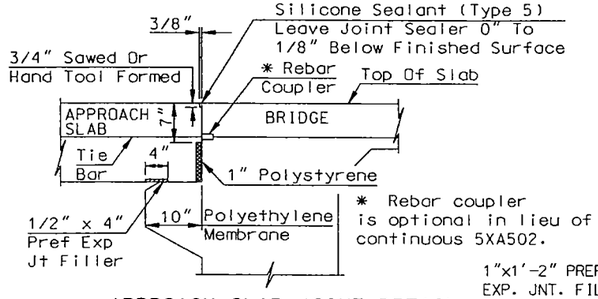
PLAN



A-A

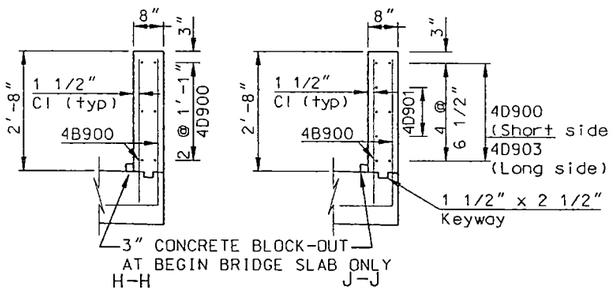


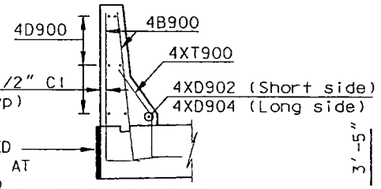
(SHOWING DIMENSIONS)
SAFETY SHAPE BARRIER PLAN



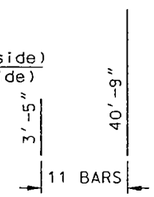
* Rebar coupler is optional in lieu of continuous 5XA502.

APPROACH SLAB JOINT DETAIL





(SHOWING REINFORCING)
G-G



5SA904 & 5SA905

NOTES:

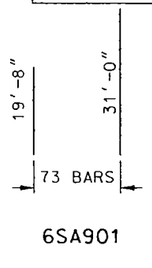
All estimated material quantities are for information purposes only. All materials including concrete, reinforcing bars, rebar couplers (if used), polyethylene membrane, preformed joint filler, polystyrene, silicone sealant and labor required to build the approach slabs and approach slab barriers shall be included in the pay item "Concrete Bridge Approach Slab." The concrete shall be Class AE-3 and the reinforcing steel shall be Grade 60. The polyethylene membrane shall meet the requirements of AASHTO M171.

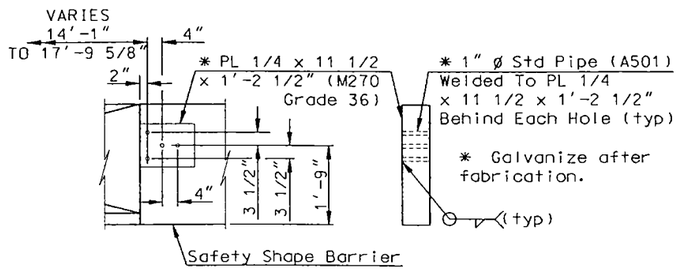
Surface Finish "D" shall be required for the inside and top surfaces of the approach slab barriers.

The bar marks beginning with an "X" indicate an epoxy coated bar. The dimensions shown in the bent bar details are out to out.

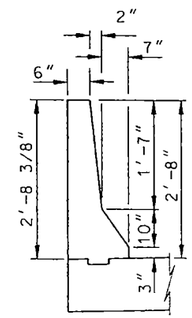
SKEW ANGLE = 15°			
BAR LIST - ONE SLAB			
SIZE	MARK	NO.	LENGTH
7	SA900	1	2153'-4"
6	SA901	1	1849'-4"
5	A902	20	42'-2"
5	A903	20	42'-2"
5	SA904	1	242'-11"
5	SA905	1	242'-11"
5	A906	8	6'-0"
5	A907	8	6'-0"
4	B900	156	4'-0"
4	D900	6	19'-8"
4	D901	4	4'-0"
4	XD902	1	14'-2"
4	D903	6	27'-6"
4	XD904	1	24'-11"
4	XT900	40	3'-0"

ESTIMATED MATERIAL QUANTITIES	
REINFORCING STEEL (LBS)	CONCRETE (CY)
10,268	51.1

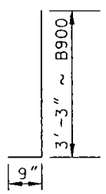




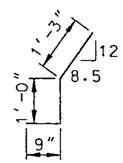
(SHOWING FRONT FACE)
CONNECTION PLATE DETAILS



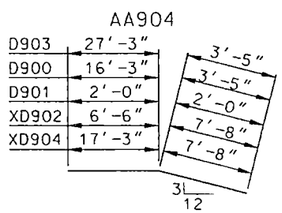
(SHOWING DIMENSIONS)
G-G



B900



XT900



D900, D901, XD902, D903 & XD904

QUANTITIES	(ONE SLAB)
APPROACH SLAB	121.7 SY

PIPESTEM CREEK
HWY 52 BYPASS
JAMESTOWN

APPROACH SLAB DETAILS

12:09:35 PM
08/08/2002

0:\DGN\J980102\Revise_Aug8\J980102\PIPESTEM\DECK\APPSLAB1-SHT.dgn

NORTH DAKOTA CONCRETE PRODUCTS COMPANY

PRECAST BRIDGE BEAM SHOP DRAWINGS

COUNTY – STUTSMAN
PROJECT NO. – HPP–2–052(019)915
STRUCTURE NO. – 52–915.716
ENGINEER – NDDOT
CONTRACTOR – SWINGEN CONSTRUCTION
MANUFACTURING PLANT – MENOKEN

DESIGN DATA

CONCRETE DESIGN	–	SEE STRAND SHEETS
DETENSION	–	SEE STRAND SHEETS
STRAND	–	0.6″ 270 K.S.I. LOW-LAX
REINFORCING STEEL (Except as noted)	–	GR. 60
PRESTRESS LOSSES	–	SEE STRAND SHEETS
LOADING	–	HS25
WEIGHT	–	120,400#

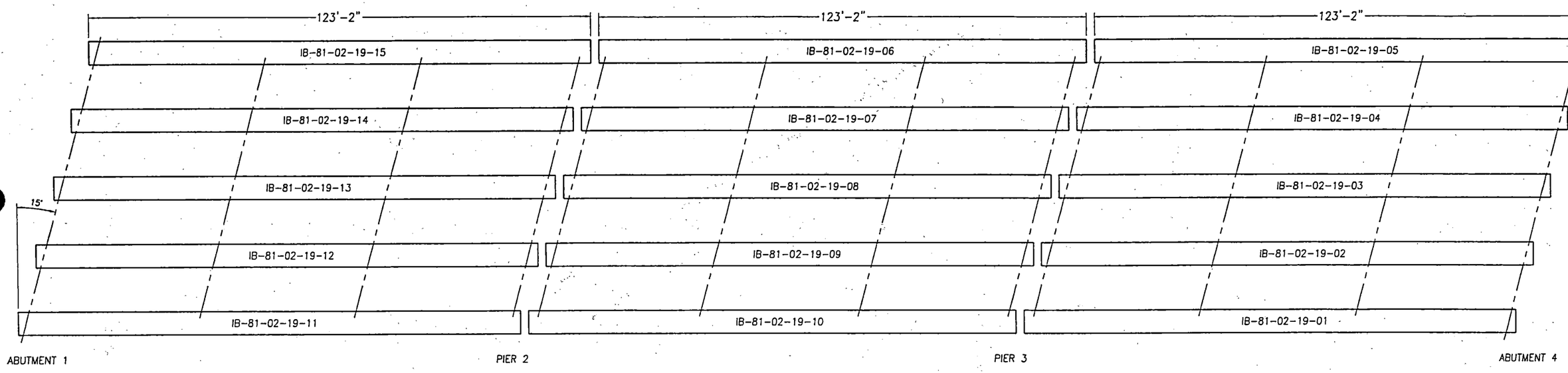
INDEX OF SHEETS

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION
FINAL APPROVED
DRAWING
DATE 7/30/02 BY

R/S #452834	
SKEW 15° LEFT	TRIPLE SPAN
NO. OF BEAMS	15
HEIGHT	81″
LENGTH	123'–2″
DATE: 7/31/02	
TITLE SHEET	
81″ I-BEAMS	
IB–81–02–19	

DRAWN BY:
SCOTT SCHNEIDER

19TITLE



TRIPLE SPAN LAYOUT

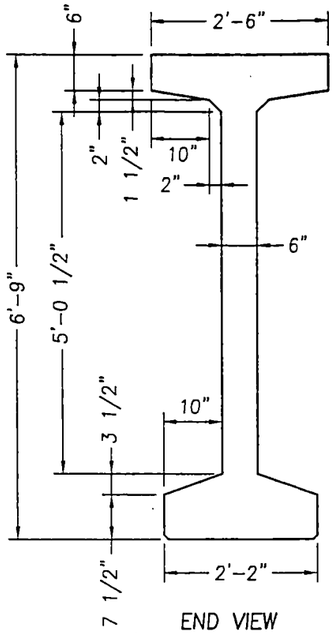
NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION
FINAL APPROVED
DRAWING
15 Nov 02 — DATE
BY

STRUCTURE NO. 52-915.716

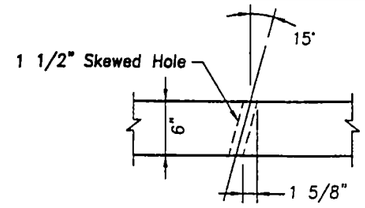
LAYOUT
TRIPLE SPAN
IB-81-02-19

REVISED: 11/15/02

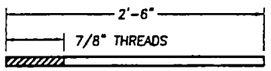
19LAYOUT



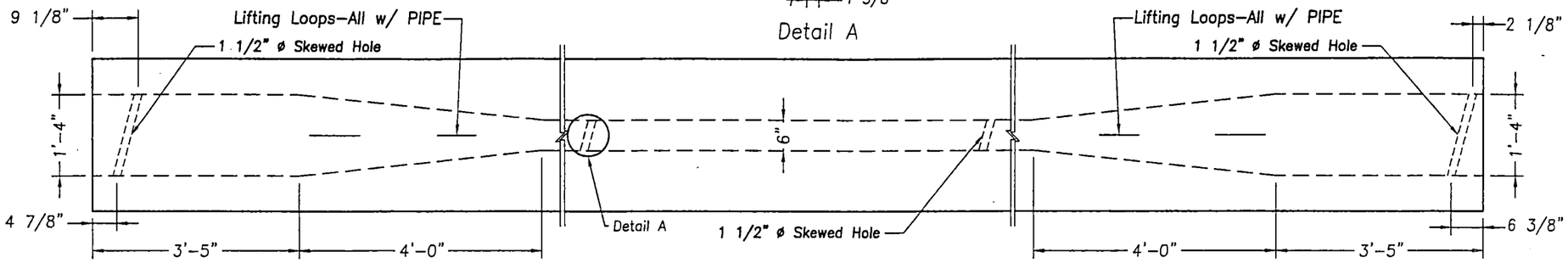
END VIEW
(SECTION @ ℄ OF BEAM)



Detail A



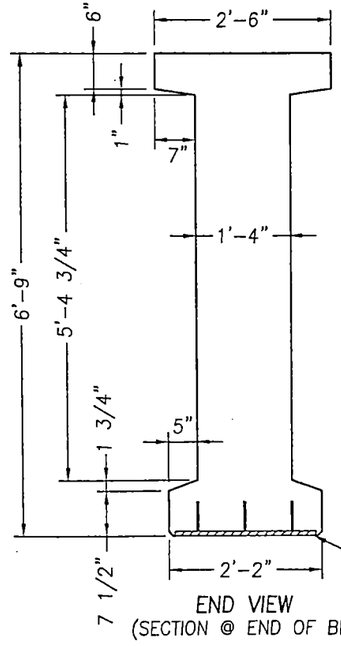
6AT500 DETAIL
(160 REQUIRED)



ABUTMENT END DETAIL

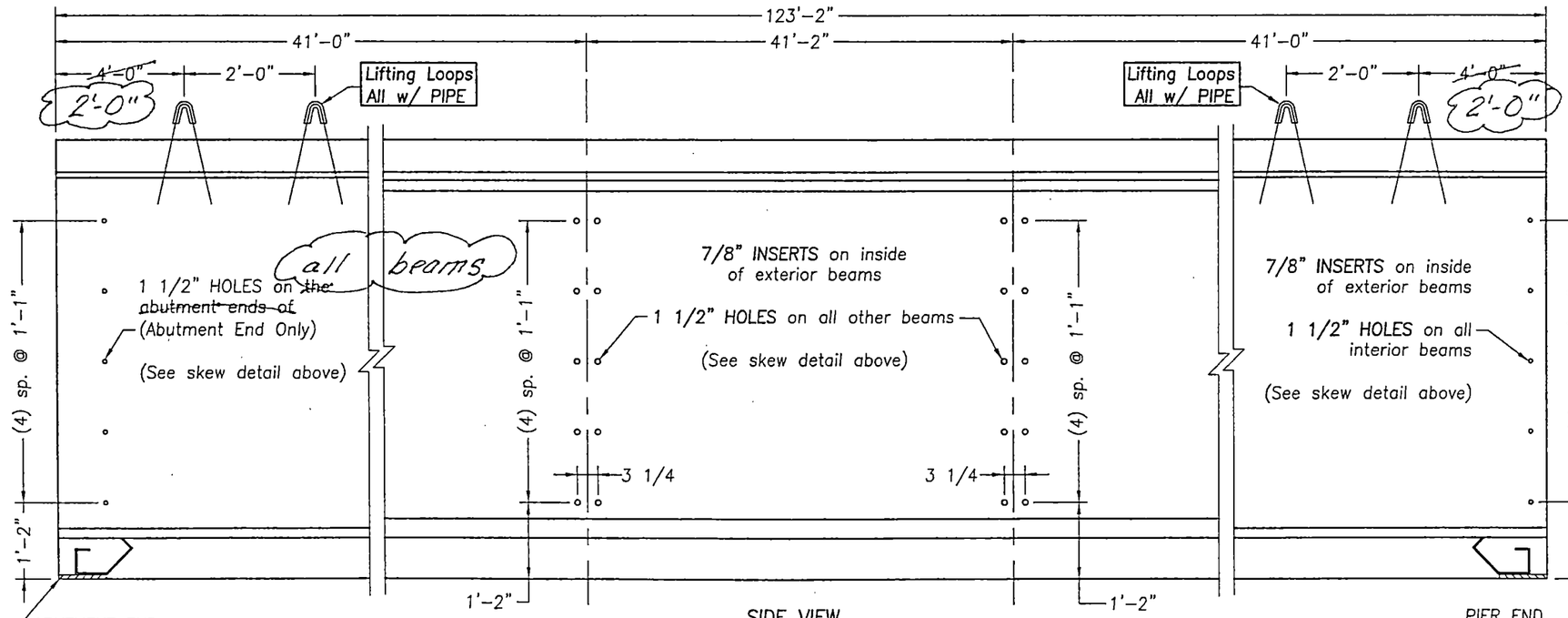
INTERMEIDATE DIAPHRAGM
(not showing inserts)

PIER END DETAIL
(not showing inserts)



END VIEW
(SECTION @ END OF BEAM)

TOP VIEW



ABUTMENT END

Bearing Plate – Each End

SIDE VIEW
INSERT DETAIL
(NOT TO SCALE)

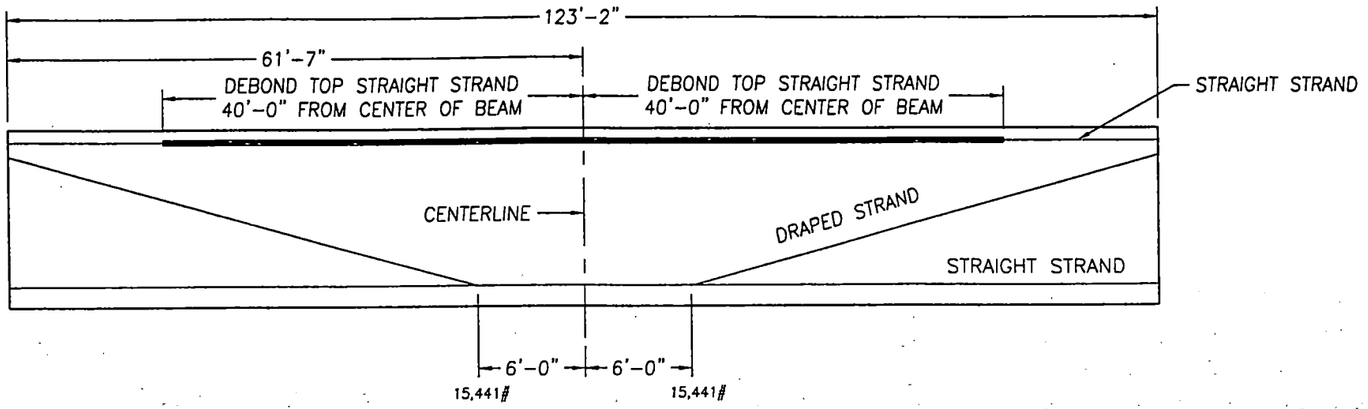
PIER END

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION
APPROVED AS NOTED
19 Sep 02
DATE
BY

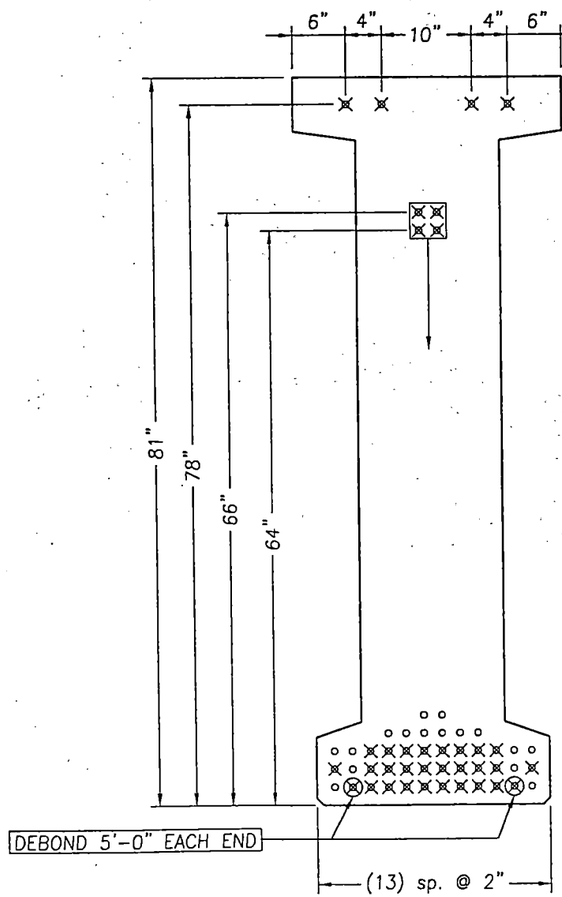
DIMENSION
TRIPLE SPAN
IB–81–02–19

STRUCTURE NO. 52–915.716

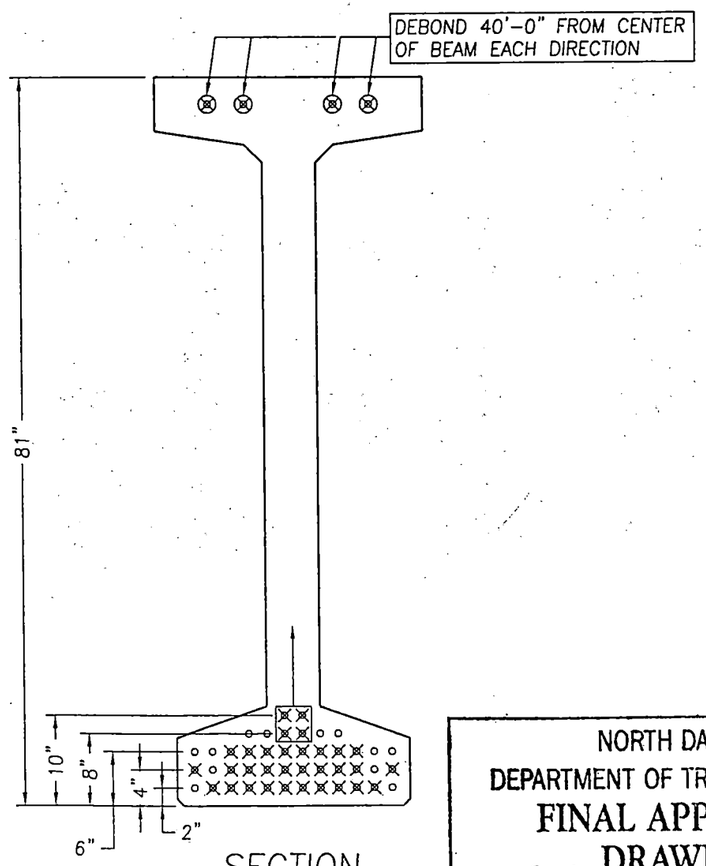
19DIM



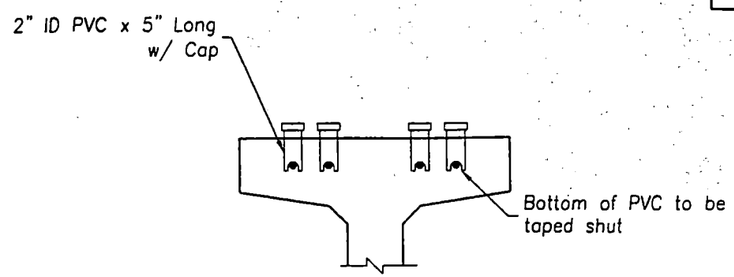
ELEVATION



SECTION AT END



SECTION AT ℄



SECTION AT ℄

(Showing Top Strand Blockout)

Notes for Top Straight Strand:

1. PVC Blockouts to be filled w/ Epoxy immediately after strands are cut.

NO. OF DRAPED STRAND	=	4
NO. OF STRAIGHT STRAND	=	32
TOTAL NO. OF 0.6" ø STRAND	=	36
CENTER OF GRAVITY AT ℄	=	12.67"
INITIAL FORCE	=	1406.2 K
FINAL FORCE	=	1068.6 K

DESIGN DATA FOR THIS STRAND PATERN ONLY

CONCRETE DESIGN	-	6,100 PSI
DETENSION	-	5,440 PSI
PRESTRESS LOSSES	-	48,612 PSI

0.6" ø STRAND

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION
FINAL APPROVED DRAWING
21Oct02 DS
DATE BY

REVISED: 10/16/02

STRAND-OPTION B

TRIPLE SPAN

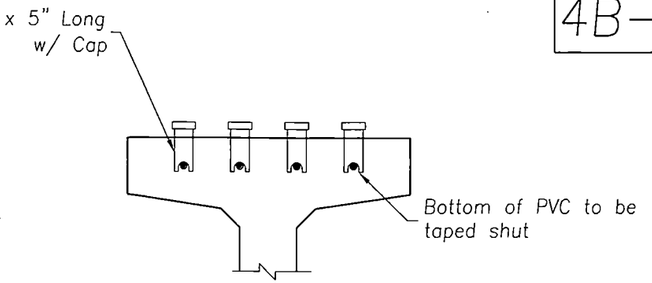
IB-81-02-19

STRUCTURE NO. 52-915.716

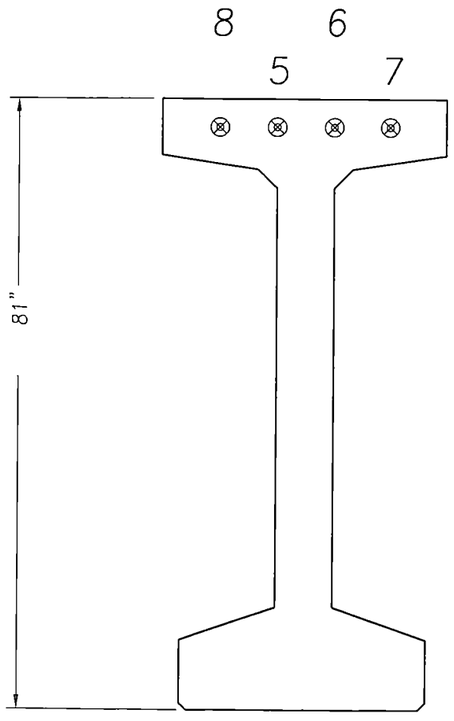
Notes for Top Straight Strand:

1. PVC Blockouts to be filled w/ Epoxy the same day after strands are cut.

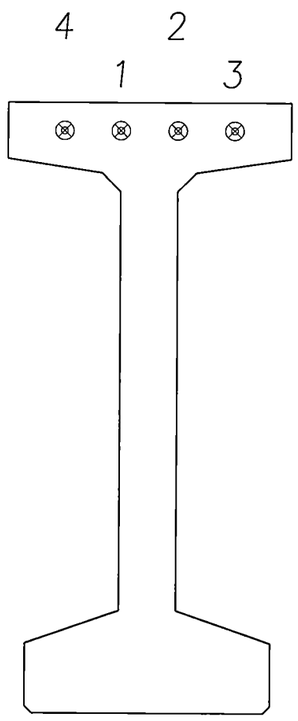
NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION
FINAL APPROVED
DRAWING
17Mar03
DATE
BY



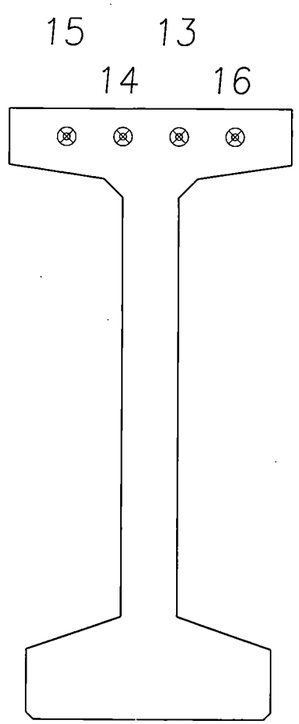
SECTION AT ℄
(Showing Top Strand Blockout)



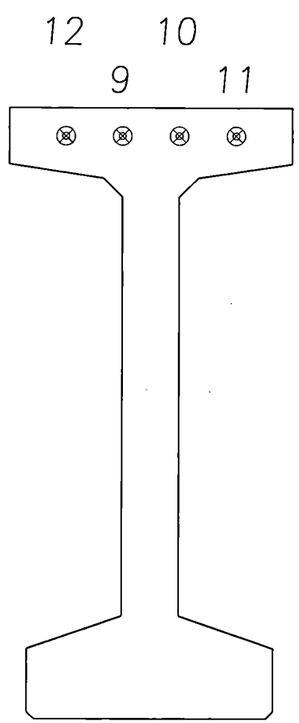
Girder #1



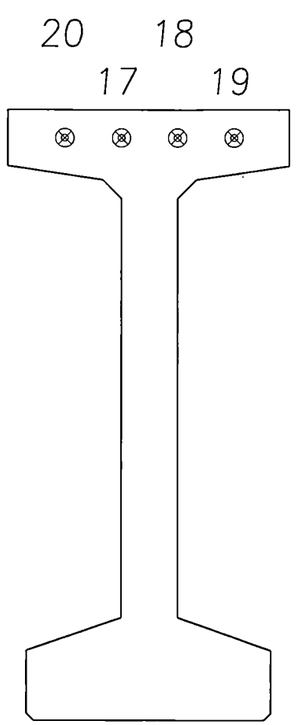
Girder #2



Girder #3



Girder #4

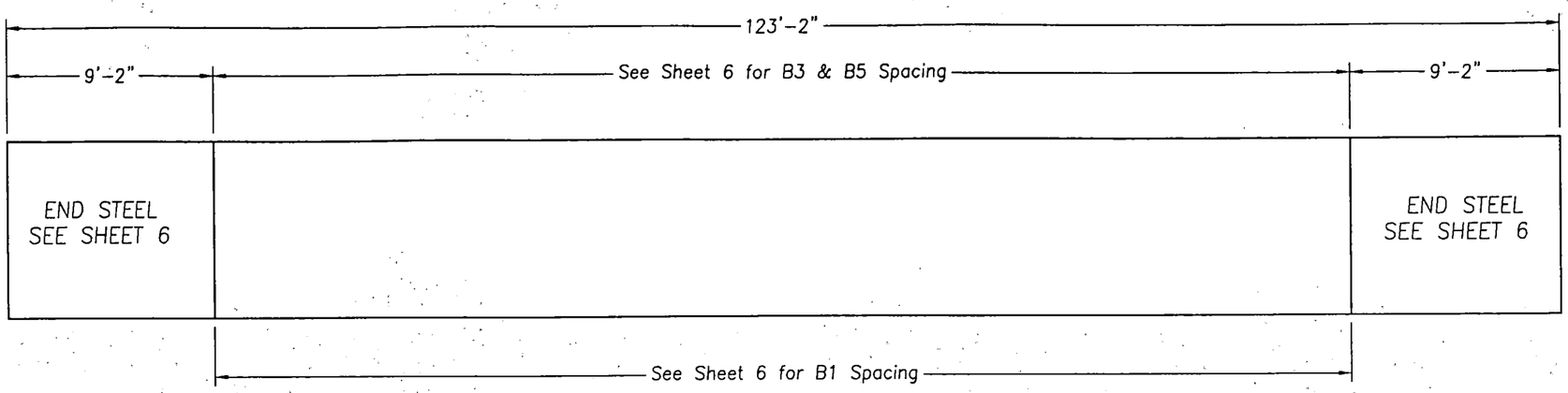


Girder #5

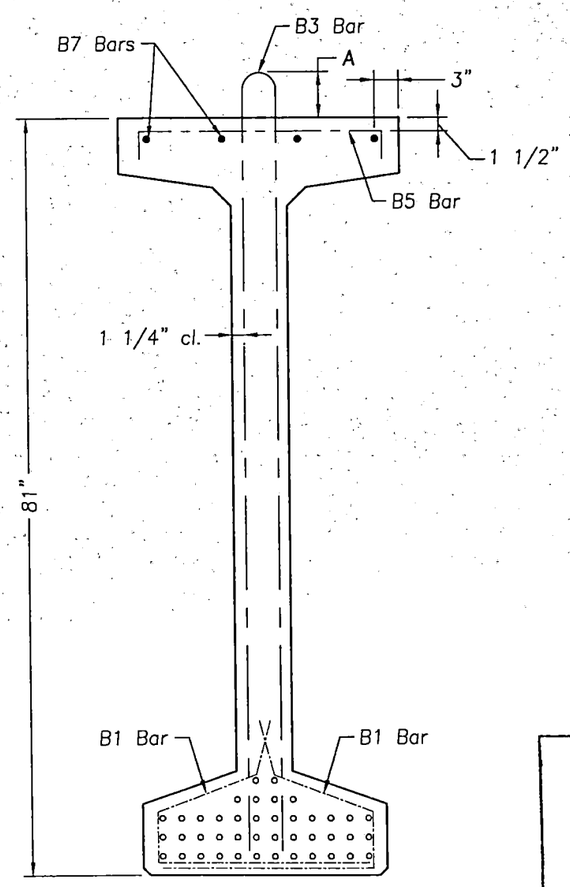
TOP STRAND FIELD CUT ORDER
SECTION AT ℄
(NOT showing Top Strand Blockout)

STRUCTURE NO. 52-915.716

STRAND-OPTION B
TRIPLE SPAN
IB-81-02-19



SIDE VIEW



SECTION AT
℄ OF BEAM

NOTES;
B7 BARS ARE TO BE OVERLAPPED A MIN. OF 3'-0" AT ALL SPLICES.

ALL LIFTING LOOPS ARE SPECIAL ORDERED FROM ELK RIVER MACHINE LIFTING LOOPS INCLUDE A PIPE (SEE SHEET NO. 3 FOR LOCATION)

A DIMENSION

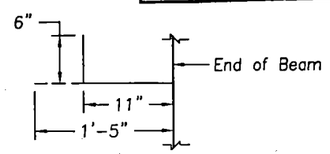
Distance from End of Beam	A
0' to 9'-2"	7"
9'-2" to ℄	5"

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION
FINAL APPROVED
DRAWING
10 Oct 02 — DATE
D. Stolz — BY

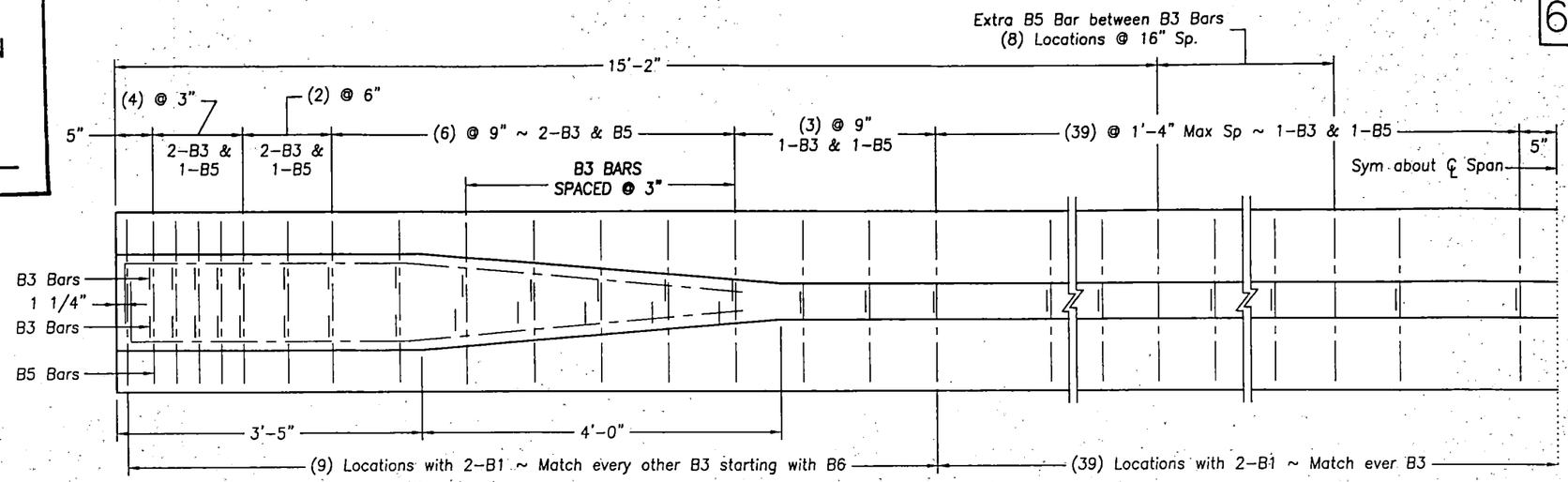
STRUCTURE NO. 52-915.716

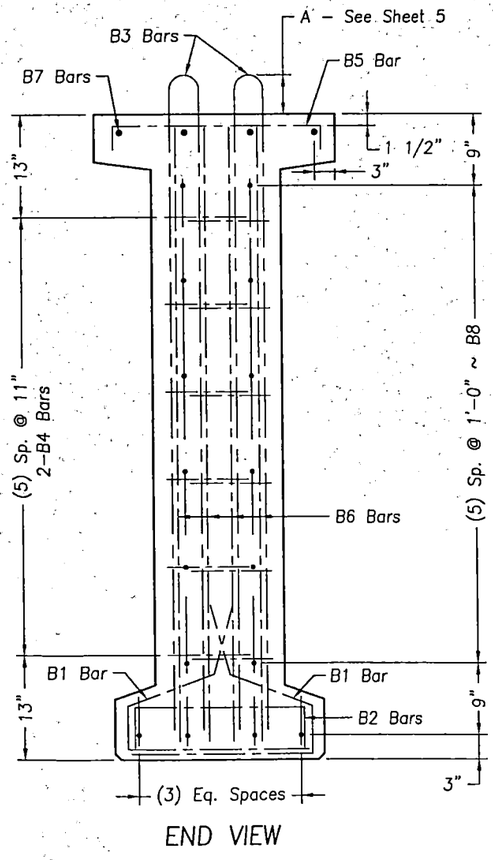
REINFORCING
TRIPLE SPAN
IB-81-02-19

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION
FINAL APPROVED
DRAWING
7Oct02 DATE — D Stolz BY



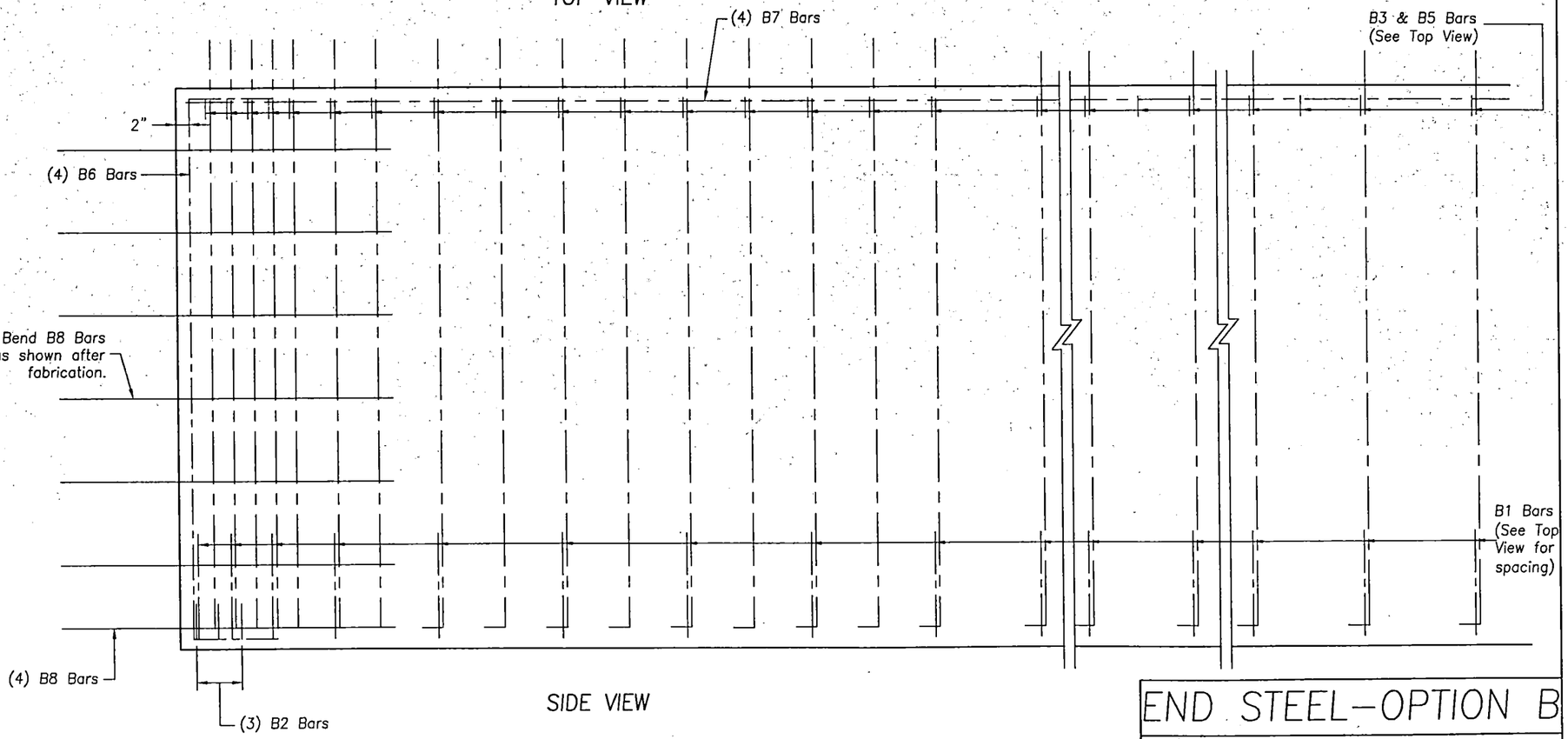
B8 BENT BAR DETAIL





END VIEW

TOP VIEW

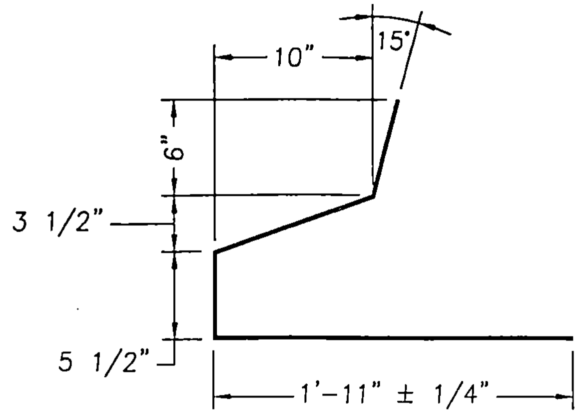


SIDE VIEW

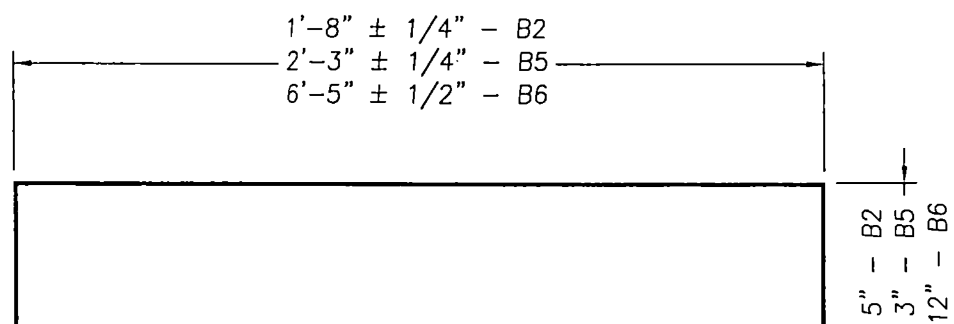
END STEEL-OPTION B
TRIPLE SPAN
IB-81-02-19

STRUCTURE NO. 52-915.716

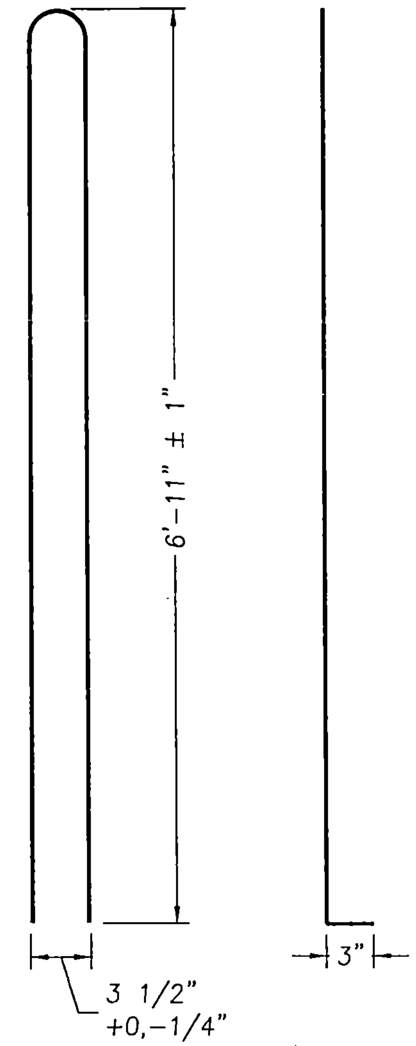
19ENDST-B



B1



B2, B5 & B6

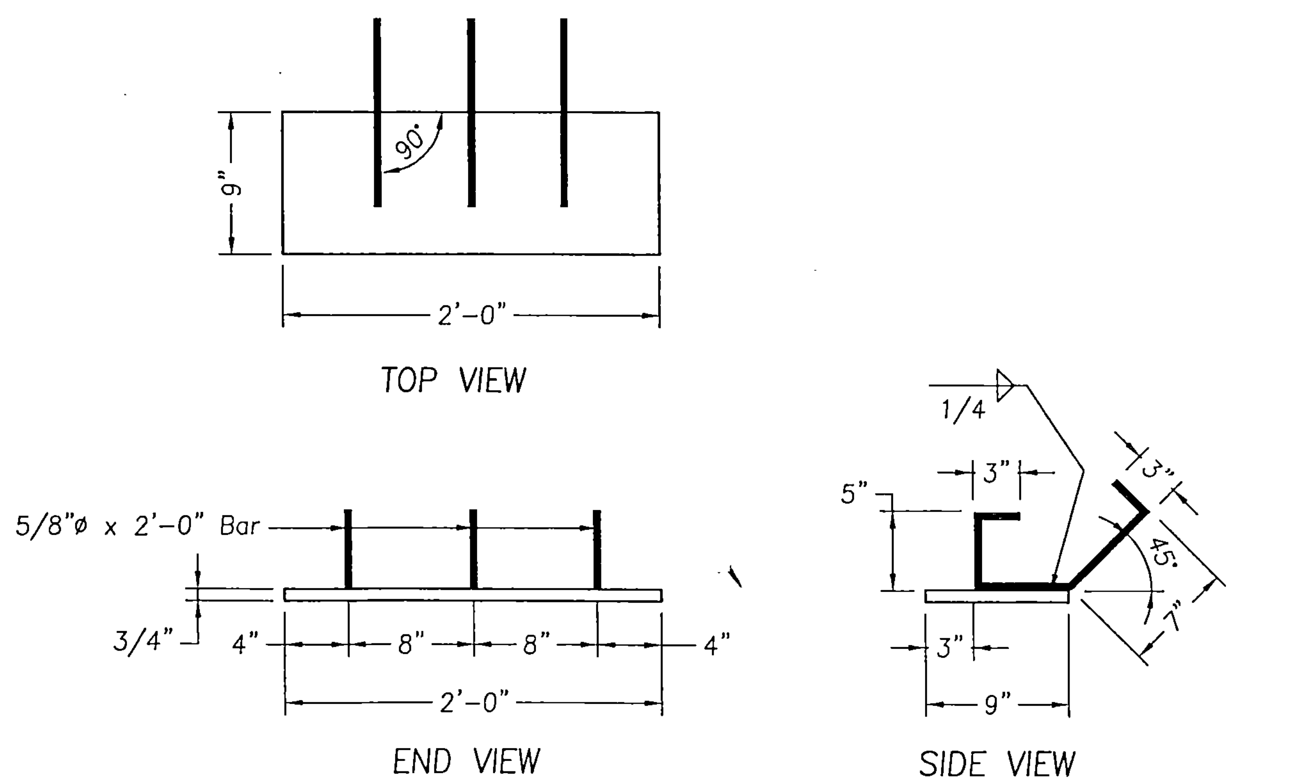


B3

REINFORCING STEEL SCHEDULE					
MARK	TYPE	SIZE	LENGTH	QTY/BEAM	TOTAL
B1	BENT	4	3'-9"	192	2880
B2	BENT	5	2'-6"	6	90
B3	BENT	4	14'-7"	136	2040
B4	BENT	4	8'-1"	24	360
B5	BENT	3	2'-9"	126	1890
B6	BENT	5	8'-5"	8	120
B7	STR.	8	33'-0"	16	240
B8	STR.	5	4'-0"	32	480
BEARING PLATE				2	30

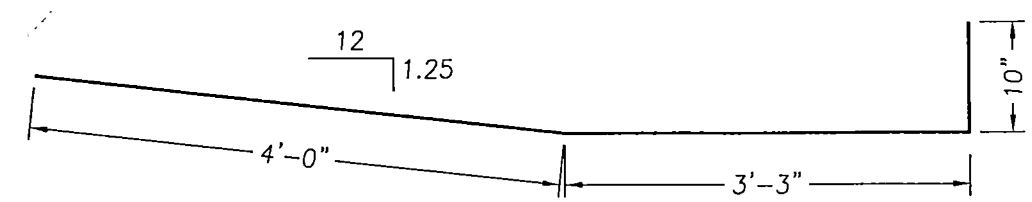
ALL DIMENSIONS ARE OUT TO OUT.

ALL REBAR TO BE GRADE 60.



BEARING PLATE
(Hot Dipped Galvanized)

Note: Bearing Plate to be Structural steel M-183.



B4

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION
FINAL APPROVED
DRAWING
7 Oct 02 DATE
BY

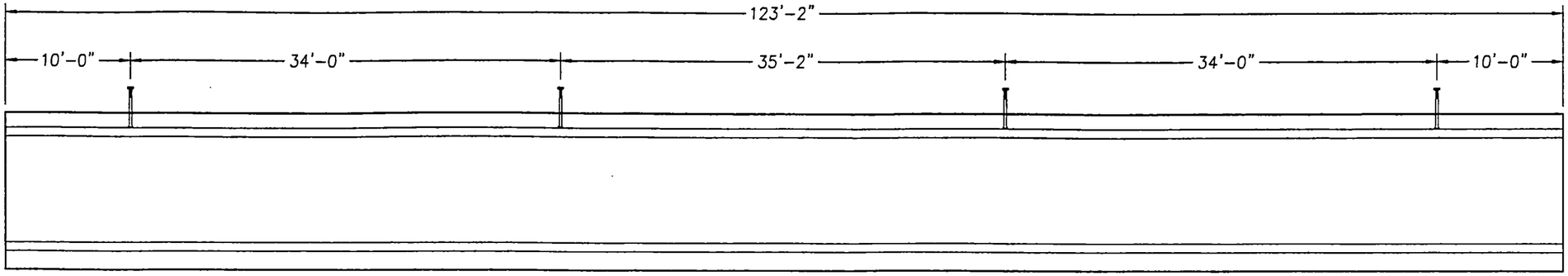
STRUCTURE NO. 52-915.716

REBAR-OPTION B

TRIPLE SPAN

IB-81-02-19

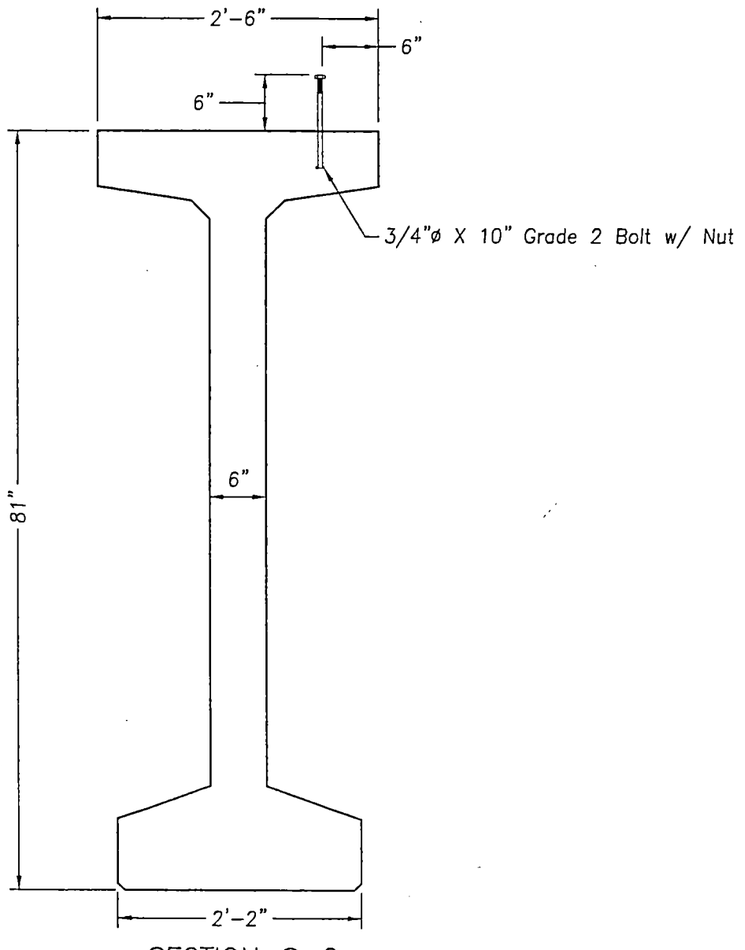
19REBAR



SIDE VIEW

Spacing of Contractor Safety Rail Bolts

(Bolts supplied by contractor)



SECTION @ ℄

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION
FINAL APPROVED
DRAWING
19Sep02 — DATE
D Stolz — BY

STRUCTURE NO. 52-915.716

SAFETY RAIL

TRIPLE SPAN

IB-81-02-19